DOCUMENT RESUME

ED 197 484 EA 013 310

AUTHOR Merrell, Russell G.
TITLE A Report on Alternatives to School Building Construction.
INSTITUTION Utah State Board of Education, Salt Lake City.
PUB DATE 80
NOTE 65p.: Tables 1 and 5 may be marginally legible.

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Busing; Construction Costs; Cost Effectiveness; *Educational Facilities Planning; Elementary Secondary Education; *Enrollment Projections; Extended School Day; Facility Utilization Research; Inflation (Economics); *School Construction; Shared Facilities; Year Round Schools
IDENTIFIERS *Utah

ABSTRACT

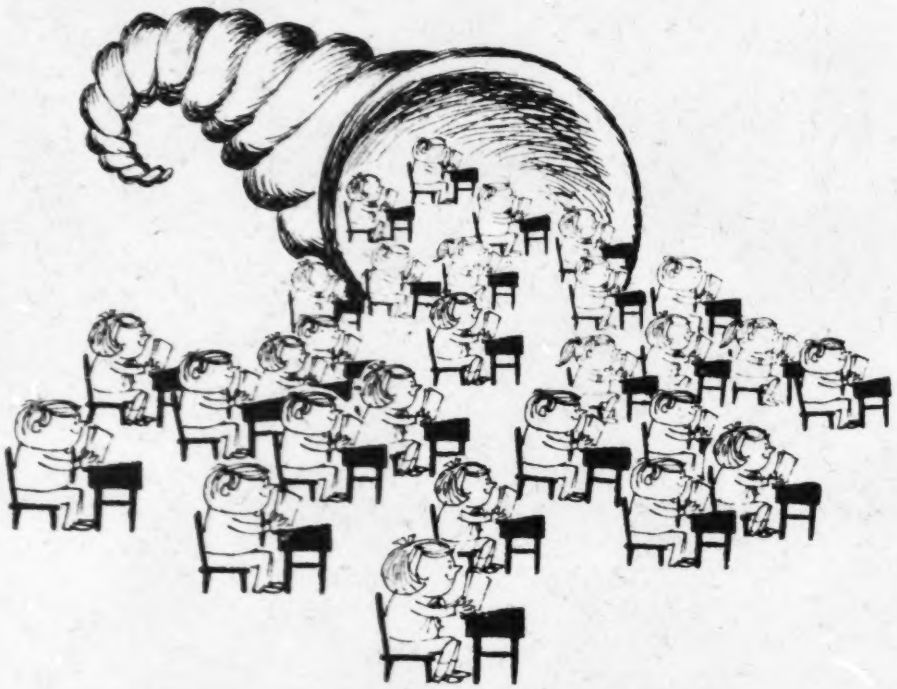
It is estimated that Utah will need to spend $1.7 billion for new school construction during the next decade, and that this should be concentrated mainly in a few rapidly growing districts. The projection of school construction need represents a six-fold increase during the coming decade; however, assessed valuation (the measure of a school district's ability to finance new construction) is only expected to double during that time. Thus, by 1983-84 it is estimated that 16 districts will be unable to finance their school building needs. The purpose of this report is to examine seriously some possible alternatives to school building construction. Of the alternatives suggested, four appear to have the greatest potential in Utah: extended year or year-round schools; extended day or double sessions; busing across district lines; and cross utilization of public K-12 facilities and public higher education facilities. These four options are discussed in depth in the chapters of this report. (Author/MLF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED197484



SOME ALTERNATIVES TO SCHOOL BUILDING CONSTRUCTION

EA 013 310

UTAH STATE BOARD OF EDUCATION
1980

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

V. L Hall

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

A REPORT ON ALTERNATIVES TO SCHOOL BUILDING CONSTRUCTION

Submitted by

Russell G. Merrell

to

Dr. Walter D. Talbot
State Superintendent of Public Instruction

October 10, 1980

DEC 1 9 1980

UTAH STATE BOARD OF EDUCATION

AND

UTAH STATE BOARD FOR VOCATIONAL EDUCATION

BOARD MEMBERS

W. Dean Belnap, Chairman
District 5
Kaysville 84037

Ross B. Denham, Vice Chairman
District 7
Provo 84601

Jesse Anderson
District 4
Ogden 84401

Mrs. Lila B. Bjorklund
District 1
Salt Lake City 84103

Mrs. Joan Burnside
District 2
Magna 84044

Mrs. Erma J. Christensen
District 1
Salt Lake City 84105

A. Glenn Christensen
District 2
Salt Lake City 84120

Rodney L. Dahl
District 3
Sandy 84070

Stephen L. Garrett
District 7
Cedar City 84720

Jay A. Monson
District 4
Logan 84321

Karl Shisler
District 6
Roosevelt 84066

Walter D. Talbot, Executive Officer

LaPreal W. Lublin, Secretary

ACKNOWLEDGMENT

In preparing this report the author is indebted to many people in Utah and in other states. At the risk of overlooking someone, I would express appreciation to Dr. Raymond W. Whittenburg, Superintendent and staff members, Calvin Newbold, Kent King, Lyle Thacker, Earl Stuker, Dale Christensen, Grant Pullan, and Gilbert Stevenson of the Jordan School District for sharing their experience and expertise on several alternatives tried and considered in Jordan School District. Thanks also to Dr. William Leiter and Dr. Ralf Riches of Granite School District for their input.

Colleagues at the State Office of Education supplied information both on content and process. I am particularly grateful to Dr. Don Richards, Dr. Scott Bean, Dr. David Nelson, Dr. Arthur Bishop, and Mr. Bob Olson for their help in the preparation of this report.

Donald Glines and Dr. Mitchell Voydat of the California State Department Of Education provided invaluable expert advice and information of year-round schools as did Dr. David Pascoe, President of the National Council on YRS and Dr. Charles Ballinger, San Diego County School District. Dr. William D. White of the Jefferson County Unified School District in Colorado, and Dr. James R. Gave of the Valley View Community Schools in Illinois provided materials and conversation on their experiences in year-round school. My thanks to all of these people.

Russell G. Merrell
Specialist, School Building
Construction

FOREWORD

During the decade of the 80's, Utah schools will experience steady growth in enrollment. That enrollment will accelerate where energy and military developments take place. Providing appropriate school facilities that are affordable and energy efficient is one of the greatest challenges facing the people of Utah.

Utah, historically, has supported public education and has made quality education one of its major commitments. That is a rich tradition that the people can ill afford to abandon. Yet the cost of public education continues to rise and with staggering enrollment increases those costs may become more burdensome than can be accepted enthusiastically. Thus every effort must be made to hold down costs without sacrificing quality. One of the most significant means of cost restraint may be in capital outlay expenditures.

Strange phenomena are operating in the school building program. Neighboring school districts are having dramatically different experiences. A board of education in one district finds that it cannot heat and maintain unneeded facilities while nearby an equally hard-pressed board finds it cannot construct schools fast enough to keep up with burgeoning enrollments and increasing demands for new facilities. In some districts boards have had to cut back what they have only recently expanded because neighborhoods which once were young and regarded schools as their best investment have quickly grown old and see expenditures for buildings as an unnecessary waste of their retirement income.

State building programs, too, have contributed to the difficulty. Districts unwilling to make local effort have been rewarded with state grants while districts with greater need and a history of magnificent effort have been starved by an impecunious state building program.

The contradictory financial limitation and program expansion problems in the state should cause serious reflection. It has become evident that we need to make better use of what we have by devising creative ways to utilize existing facilities and to build new ones in such a way as to provide for multiple use by the community. There may be in this era a great opportunity to turn these difficult conditions into important changes for the better. Efforts should be extended to providing a closer relationship between the schools and the community they serve and to link each generation together in the interests of economy and quality education.

In the consideration of the need for new school facilities every alternative should be explored and policy direction should be given in each of the following areas:

1. Building codes should be examined to bring about a better cost-benefit relationship.

2. Life-cycle costs should be considered to optimize the use of energy and materials.

3. Flexibility in design and construction should be utilized to meet the needs expressed by mobile populations and changing community and curriculum programs.

4. School buildings should take into account the availability of appropriate recreational and cultural facilities in the community to avoid duplication and to complement them.

5. Double sessions, year-round schools, cross-jurisdictional busing, optimal use of higher education and other facilities, and other creative approaches should be considered as measures to relieve overcrowding and as options in meeting school building needs.

6. Equalization of school capital expenditures on a par with equalization in the maintenance and operation of schools should be implemented.

7. Maximal space utilization should be sought through techniques such as designing multi-use core facilities with accommodating mobile classrooms and community facilities.

8. Efforts aimed at providing adequate state funding to meet school building needs should be made with corresponding maximal local effort and full cooperation and shared facility use among districts and local governments.

This publication by the Utah State Board of Education illuminates many alternatives to school building construction while again showing the needs which lie ahead.

Appreciation is expressed to the staff of the Utah State Office of Education, particularly Russell G. Merrell, who did most of the work in preparing this publication.

Walter D. Talbot
State Superintendent
of Public Instruction.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT.	i
FOREWORD	ii
TABLE OF CONTENTS	iv
CHAPTER I	
Introduction	1
CHAPTER II	
Some Alternatives to School Building Construction	4
CHAPTER III	
The Extended School Year/Year-Round School . .	10
CHAPTER IV	
Extended School Day/Double Session	29
CHAPTER V	
Busing as an Alternative to School Construction	34
CHAPTER VI	
Joint Use of Elementary/Secondary and Higher Education Facilities	38
CHAPTER VII	
Considerations in Adopting and Implementing Alternatives to School Building Construction . .	43
CHAPTER VIII	
Conclusions and Recommendations	46
BIBLIOGRAPHY	49

CHAPTER I - INTRODUCTION

In December, 1978, the Division of Education Support Services of the Utah State Office of Education estimated that, based on the best estimates of growth available at that time, Utah would need to spend $1.7 billion for new school construction during the next decade. Moreover, this new construction would not be needed uniformly over the state but would be concentrated mainly in a few rapidly growing districts. These estimates were based on an inflation rate of 10 per cent.

In the first year after these estimates were made, the consumer price index on all items raised 13.3 per cent. Furthermore, new enrollment projections made one year after use in the December, 1978, cost projections showed an even greater enrollment increase than those estimated in 1978. At the present time, then, $1.7 billion to construct school buildings to be used in the traditional mode over the next 10 years appears to be a very conservative estimate.

One consideration not taken into account by the Division of Education Support Services in its cost estimates for school building construction is the debt service costs for money borrowed to construct school buildings. At this moment eight per cent interest is expected on bond sales and this may continue to rise. At this rate a $10.7 million bond sale amortized over 11 years will cost a district about $8.4 million in interest.

Utah has had an enviable record in passing bond elections for school construction. One reason for this is the fact that in most cases passing a bond issue has not been tied to increasing mill levies. With interest rates increasing as they are this may no longer be possible--bond sales will mean higher levies. As a result districts may find bond sale authorizations more difficult to achieve and may possibly be forced to adopt some alternative to school building construction.

The projection of school construction need represents a six-fold increase during the coming decade; however, assessed valuation (the measure of a school district's ability to finance new construction) is only expected to double during that time. Thus, by 1983-84 it is estimated that 16 districts will be unable to finance their school building needs using all sources of revenue available to them.

If these districts' needs are to be met by new construction, massive state aid will be necessary. But at this time legislators are looking for ways to cut rather than to increase taxes and taxpayers are insisting on greater economy in government.

This, then, would appear to be a most appropriate time to examine seriously some possible alternatives to school building construction. That is the purpose of this report.

In 1966 President Lyndon Johnson addressed the American Association of School Administrators and told them, in part:

> Tommorrow's school will be a school without walls--a school built of doors which open to the entire community.
>
> Tommorrow's schools will reach out to the places that enrich the human spirit to the museums, the theatres, the art galleries, the parks, and rivers and mountains.
>
> It will ally itself with the city, its busy streets and factories, its assembly lines and laboratories, so that the work does not seem an alien place for the student.

President Johnson was talking of a new and exciting approach to education, one that could have tremendous impact on the quality of education. But such an approach would have just as great an impact on school building construction. The implementation of this philosophy would cause construction needs to virtually disappear and, therefore, would be one alternative to school building construction. And it is only one such option.

Scores of alternatives to the present system of education have been proposed over the years. Many of these have implications for school buildings and would increase significantly the capacities of existing buildings. In this report, some of these alternatives that have potential for increasing school building capacities will be identified and briefly described. From these the four alternatives that appear to have the greatest potential for Utah and for relieving its school building problems will be discussed in detail. Finally, some conclusions will be drawn and recommendations made.

Before identifying alternatives, a word about a characteristic of growth in an expanding school district that has caused overbuilding. In areas of rapid growth, where new subdivisions and other housing are developed and sold, where the area is desirable and becomes stable, the number of school age children reaches a peak in a few years after the area is filled. This peak school age population continues for a number of years, even up to 20 years, but eventually it begins to drop. This drop is not as rapid as the original increase but can eventually represent up to a 50 per cent decrease from the peak population.

School districts have tended to meet this increasing number of school age children by constructing school buildings in sufficient number and size to accommodate the peak enrollments. As a result, long before the school buildings are worn out school enrollments drop to a point where some of the schools are no longer needed. Salt Lake School District, Granite School District, Ogden School District, and even Jordan School District on its northeast boundary have experienced this phenomenon.

With soaring building costs and escalating interest rates, over-building to meet peak enrollments becomes an expensive course. Some of the alternatives discussed in this report can be useful in protecting school districts from overbuilding.

It is pointed out that methods discussed in this report apply only to school construction alternatives where the building needs are caused by growth. None of these options represent alternatives to construction where the building need is the result of obsolescence or intolerable conditions in the existing structure.

CHAPTER II - SOME ALTERNATIVES TO SCHOOL BUILDING CONSTRUCTION

INCREASING CLASS SIZE

A very simple and administratively easy way to increase the capacity of a school is to put more students in each available space. All rapidly growing school districts do this to some extent, but none proposes this as a permanent solution to a school building problem. Actually, in Utah, the Legislature has acted to reduce rather than increase class size. Generally, educators and parents would seriously resist efforts to permanently increase school capacities by overcrowding the facilities. However, overcrowding sometimes has unexpected long-range benefits in that by overutilizing a facility a permanent more efficient level of utilization is arrived at. Before any new facilities are planned, complete utilization of existing facilities should be assured. However, increasing class size, or overcrowding, will not be considered an acceptable permanent alternative to school building construction in this report.

COMMUNITY CLASSROOMS

Over a decade ago some of the more innovative educators were saying any place can be a classroom. President Johnson's remarks reflect this philosophy. It has been said that "classrooms are born anywhere that the desire to teach or to learn is strong enough to make one thrill to the challenge of inconvenience or hardship."[1]

This philosophy challenged some educators to explore possibilities for unusual educational opportunities which may have gone unnoticed previously. As a result, some very creative learning situations are being used across the nation that do not require conventional building space. In Cleveland an old paper company freight elevator offered unique learning space. In Washington, D.C., an old World War II ship was used for classrooms, an old mansion, a department store, a dairy barn, a train terminal, mobile units--all of these are serving as instructional space in some part of the United States.

There is really no end to the possibilities for educational facilities once the total community is involved. It would be possible for children to study in many public facilities: libraries, museums, stores, police stations, and many other places.-

Programs were initiated in Philadelphia and Chicago that experimented with "schools without walls." Early assessments of these programs showed some decrease in per-pupil cost. Such programs do, however, create complex logistical and administrative problems which would probably make them unlikely in Utah schools for a total school population. Such a program might be developed for some high school students in metropolitan areas and thus reduce pressure on present school facilities.

In Utah there has been a limited use of such space: a National Guard armory for a physical education facility, a minority center for special education. However, no district has used such space to permanently avoid building construction. Present life safety and code requirements for the handicapped make the use of such community facilities almost impossible as an acceptable solution to Utah's school building problems.

SCHOMES

Some school districts have experimented with the use of buildings constructed to be homes or apartments as an alternative to school buildings. Where such "schomes" have been made available to districts without cost as gifts they have in fact saved the district money. However, while such a course may have some educational advantages, costs for construction are not reduced if the district must build such facilities from its own funds.

RENTING CLASSROOM SPACE

It is not uncommon for school districts under enrollment pressure to rent classroom space. However, there is no evidence that this course will save money for a district. Actually, rented space must meet all the health, safety, and educational requirements of district-owned buildings, and thus the rent will eventually represent an even greater cost to the district than construction.

A THREE-DAY--TWO-DAY PLAN

This plan has not been tried, but for some students it could work well. It is the brainchild of Gilbert Stevenson, Curriculum Consultant in Jordan School District. It could produce a 100 per cent increase in a school's capacity. The following is a summary of the plan as seen by Mr. Stevenson:

This plan is based upon three days of formal school and two days of informal education for each student. The plan could operate in a complete K-12 system or a segment of the system. Adjustments could be made for different grade levels. Group A and Group B would utilize the same school building, but each group would be comprised of completely separate students, teachers, and administrators.

> Group A would attend formal school Monday-Wednesday-Friday. On Tuesday and Thursday they would complete individual or small group assignments at home, in the community, or at school. The individual assignment would utilize resources from the community, home, and the school. The prime resource might be educational television.
>
> Group B would attend formal school Tuesday-Thursday-Saturday.

Wednesday and Friday would be informal education days.

Teachers and administrators would follow either Group A or Group B. Teachers would teach three formal days. The two informal days would be utilized for preparing curriculum, checking assignments, meeting with individuals and small groups of students as a teacher advisor, attending workshops, and building district curriculum and monitoring student assignments.

This plan would require a management system such as "GEMS", the Goal-based Educational Management System now utilized by Jordan School District. The system states curriculum in terms of units of study. It supplies placement and pre- and post-criterion K-12. Using a management system, teachers can determine students' needs, teach and prescribe assignments to meet the student needs, and evaluate the level of mastery each student obtains. A computer monitoring system is used with "GEMS" to aid teachers in testing and record keeping.

In this plan students would primarily stay in a chronological age group. Advancement, however, from one level to the next in most subject areas would be determined by students' mastery and application of skills and concepts--not on time in attendance.

This three-day--two-day plan would probably not work well with all students. However, it could work with many students. The use of this plan for selected students in conjunction with one of the other alternatives described here could be an effective alternative to building more schools.

SIX-DAY SCHOOL WEEK

Theoretically, if a school district used six days of the week for its regular five-day program, it could increase the capacity of a school by 16 and two-thirds per cent. Thus a school with a total capacity on a regular schedule of 1,000 students could increase that capacity to 1,200 students. Such an increase could prevent overcrowding in some districts.

Surprisingly, a search of the literature revealed only one use of this strategy over the years. Some school districts in Ohio tried a six-day week during World War II, not to increase building capacity, but to lengthen summer vacations so that students could aid the war effort more substantially. Lower attendance on Saturdays was reported as a problem in this case.

School districts would probably accept this plan under national emergency conditions, but it is doubtful that there would be acceptance of it as a permanent solution to building problems.

EXTENDED SCHOOL DAY

A plan of operation which some school districts have used to handle rapidly increasing enrollments is to make more intensive use of facilities by adding extra class periods to the day. This plan also involves the staggering of classes and lunch periods. Estimates are that a seven-period day will handle 15 to 20 per cent more students than a six-period day; an eight-period day will handle 25 to 35 per cent more students; a nine-period day 35 to 50 per cent more students.[2]

The extended school day used to the maximum becomes double sessions. Double sessions will be discussed in greater depth in this report as will the extended school day for high schools.

MIDDLE SCHOOL

Some school districts have manipulated the organization pattern of their schools to meet temporary enrollment increases. In districts with a 6-3-3 organization where enrollment increases have been greatest in elementary grades, the organization has been changed to a 5-3-4 or even a 4-4-4 pattern, moving the sixth or the fifth and sixth grades into a middle school with the seventh and eighth grades, and moving the ninth grade into the senior high school.

Such manipulation of the organization pattern of the district will sometimes temporarily meet increasing enrollments without additional construction. However, where enrollments continue to increase, and the district continues to expand, moving from a 6-3-3 to a 5-3-4 pattern will not meet increasing building needs for long and, therefore, this solution is not considered in this report as a permanent one.

DOUBLE SESSIONS

Double sessions represent the maximum use of the extended school day. This plan has had more general use than any other in Utah, as well as in the nation for meeting rapid enrollment increases.

Since this is a major strategy and one that holds potential for the building problems in Utah, it is discussed in detail in a subsequent section of this report.

RELOCATABLES AND MODULAR BUILDINGS

One alternative that has potential for a district wishing to prevent overbuilding for peak enrollments is the use of relocatables or classroom modules for classroom space in rapidly expanding area.

Strictly speaking, this is not an alternative to school construction, but rather a special type of construction and is therefore not studied in detail in this report. However, so that this type of construction

option is not overlooked the following brief analysis is submitted:

Relocatables have two advantages in meeting peak enrollment needs: (1) the initial cost of a relocatable classroom is less than the cost of a traditional classroom and (2) when the enrollment peak is past, the relocatables can be moved to another location where a need exists.

Generally, relocatables have followed, or are following two patterns of use. Most have been used to increase the capacity of an existing building and thus reduce the need for a new building. This use represents an addition to an existing building. There is a limit to the number of demountable classrooms that can be added because of the limits in support space the existing building can provide, i.e., multi-purpose space, media space, food service facilities, rest rooms, and other support areas.

A second possible mode for the use of relocatables to prevent over-building is to build a permanent core or support facilities and add relocatables for use as classrooms. In this case, after the need for that school has passed, the relocatables can be moved and the core facilities kept for the use of the community or sold for other uses. Using this option a school district could plan jointly with the community and some community construction funds might be used in the core facility.

The PTA survey by David L. Nelson, of the Utah State Office of Education, referred to elsewhere in this report shows that the respondents to that survey would view the use of relocatables as being equally acceptable to new construction. There is further evidence that parents and the public will generally accept the use of these structures in the fact that hundreds of relocatables are presently in use in Utah, and this use has gone on without protest. It appears a reasonable generalization to say that parents and the public will accept relocatables as a way of dealing with increasing enrollments.

Teachers and students also accept relocatables. Those presently in use are generally preferred by teachers over other rooms in the school. It appears that acceptance by teachers depends on size and the amenities offered by the relocatables rather than whether or not the classroom is of traditional construction.

Relocatable, modular, and other types of movable classrooms can be purchased for a wide varity of prices depending upon size, quality of construction, built-ins included, and a number of other factors. A relocatable classroom comparable in size to the traditional classroom, carpeted, and with its own electric heat will cost about $33,000. This is compared with the cost of the traditional classroom of $50,000. However, operational costs, (heat, maintenance, custodial care) are greater for relocatables so that the price advantage may not hold up over a lifetime period.

The greatest advantage of the relocatable is the flexibility it gives the district in meeting increasing enrollments. It provides an excellent hedge against overbuilding.

BUSING

An alternative proposal to provide classroom space for students which might be utilized on an inter- or intra-district basis is that of transporting students to schools which do have space available.

This is another strategy that has been widely suggested in Utah and it will be discussed in greater detail in a subsequent section of this report.

EXTENDED YEAR OR YEAR-ROUND SCHOOL

This is one of the most promising alternatives to school building construction. It has been and is being widely used across the United States as a means of improving education, as well as a means of avoiding school building construction This alternative, too, will be discussed in detail in a later section of this report.

CROSS UTILIZATION OF PUBLIC K-12 FACILITIES AND PUBLIC HIGHER EDUCATION FACILITIES

In those areas of the state where public higher education institutions are adjacent to or near school districts with heavy enrollment increases, it may be possible for those school districts to make use of some of the higher education facilities to help relieve overcrowding. This strategy has been suggested for Utah and is discussed at greater length later in this report.

These are some of the alternatives that have been suggested and used to reduce the need for school building construction. Of these, four appear to the author to have the greatest potential in Utah: extended year or year-round school; extended day or double sessions; busing across district lines; and cross utilization of public K-12 facilities and public higher education facilities. These four options are discussed in some depth in the following chapters of this report.

CHAPTER III - THE EXTENDED SCHOOL YEAR/YEAR ROUND SCHOOL

INTRODUCTION

One alternative to school building construction is to increase the capacity of existing schools by increasing their utilization. Since schools traditionally have operated approximately nine months out of the year, various ways of extending this use over all 12 months have been proposed. Such schemes have taken a number of names but in the past decade have generally been termed year-round school (YRS) and that is the term used in this report.

Simply stated, a year-round school can be defined as any plan in which some portion of the student body is in attendance in regular school terms during each season of the year. There are, however, almost as many YRS programs and calendar variations as there are practitioners. Most of these provide either incidentally or deliberately for increased capacity in a school facility; however, some do not. Only plans which do provide for increased capacity will be considered here.

HISTORY OF YRS

By the end of World War I school calendars in American schools had been standardized on a nine-month school year beginning aro ıd September 1, and ending in late May or early June. This calendar ..as a reflection of the agrarian society of the preceding century and a life style wherein children were needed during the summer months as a part of the farm work force. Although urban schools had maintained a variety of calendars during the 1800's, including a 12-month calendar, by 1918 the nine-month calendar had won out even in the cities. Even so, there continued to be efforts, principally in urban areas, to adjust the school calendar to accommodate summer school and various types of enrichment and remedial class work in the summer.

With the advent of the great depression the need to save funds became paramount, and most extended year programs, summer schools, and other approaches to year-round schools were discontinued.

After World War II support for education was strengthened and mostly stimulated by federal and state funds, summer school began once more to be a feature of the education programs of most school districts. In Utah, some school districts have developed significant summer programs encompassing such areas as vocational education, home economics, vocational agriculture, summer recreation classes, and summer academic work. However, these were developed to supplement the standard nine month's program and did not increase the capacity of the facilities.

During the past decade there has been a strong renewal of interest in the year-round school in the United States. Hundreds of schools throughout the nation have implemented various year-round education programs.

The most common reason for such a change has been rapid increases in a school's or district's enrollment. By simply changing its calendar, a school may increase its capacity by as much as 50 per cent.

Other reasons for change to a year-round program include the ability to provide attendance options for children and parents, to provide more remedial opportunities for students, to reduce time spent in relearning forgotten material, and to serve as a catalyst for changing the curriculum.

Interest in YRS in the seventies reached its peak in 1976 when some plan of YRS was offered in 28 states. California alone had 57 school districts that had year-round programs. There has been a decline in these programs since 1976, largely in California where only 40 school districts remain active. Several reasons are given for this decline: withdrawal of money from the program as a result of Proposition 13; influence of the back-to-basics movement; political conflicts in some of the sponsoring school districts; and, the most common reason, declining school enrollments removing the need for additional space. However, at least 17 states still have YRS programs and some school systems have increased the number of year-round schools they operate.

The largest year-round school system, Jefferson County, Colorado, now has 32 schools involving approximately 30,000 students in year-round programs. The Valley View Community Schools in Romeoville, Illinois, has conducted K-12 year-round schools for the past 11 years making this the grandfather of all YRS programs in the nation. The 11 year existence of the Valley View program is often cited as proving that the YRS concept can work at all levels of education. Another grandfather program is in operation at Francis Howell School in St. Charles, Missouri, where a K-9 year-round program has been in operation also for 11 years. There is, then, extensive experience in year-round school and this experience provides a good base for assessing such programs.

The movement to year-round education is nationwide. To assist the movement, a group of lay citizens and professional educators have organized the National Council on Year-Round Education. This group sponsors national seminars to assist the study of year-round schools. It also issues annually a national directory of such schools. This organization believes that YRS is the wave of the future in education.

There have been no year-round schools in Utah as defined in this report. In 1972-73 Granite School District did a comprehensive study on YRS and published a "Report on Year-Round School Study." This study concluded that:

1. A flexible attendance schedule is advantageous and desirable for:

   (a) more efficiently and economically utilizing school facilities and staff;

(b) improving educational programs and opportunities for students;
(c) providing a variety of vacation periods and choices for families;
(d) providing opportunity for full time professional employment of staff.

2. The 45-15 cycle of attendance and vacation is feasible because of:

(a) its ready adaptability to Granite District's existing scheduling components;
(b) its potential curriculum when restructured in nine-week segments with greater variety of course offerings;
(c) opportunity for voluntary school attendance during out-of-school interims for enrichment, earlier graduation, or both;
(d) probability for voluntary utilization during vacation periods of school recreational facilities (such as playground and gymnasiums) and of school libraries and their media for independent study.

The report recommended that the district consider changing to a year-round flexible attendance and vacation schedule and develop a pilot operation. These recommendations were never implemented since at that time enrollments in Granite District began to stabilize and the urgent need for space was reduced.

YEAR-ROUND PLANS

As was stated above, there is a variety of year-round schemes or calendars. A brief description of some of these that can increase school capacities follows:

1. The 45-15 Staggered Plan

In this plan students attend school 45 days and then have 15 days of vacation. One-fourth of the students assigned to the school starts in school every 15 days. Thus, with the students divided into four groups, Groups A, B, and C are in school while Group D is on vacation. When Group D returns, Group A goes on vacation. This rotation continues every 15 days. Teachers follow the track schedule of their students or they can jump tracks and teach 12 months.

2. The Concept 6 Plan

Concept 6 has been used successfully in both elementary and secondary schools; it is the best spacesaver of any of the current year-round calendars, if implemented on a mandatory basis, having the potential of increasing the capacity of a building up to 50 per cent.

In this plan the year is divided into six terms of 43 days each, and the students are divided into three groups. Students attend four of the six 43-day terms, each two of the four terms consecutively, thus, each group attends school 86 days, and is then on vacation 43 days and then is joined by Group B for another 43 days. Now Group C enters and Group A, having completed 86 days, goes on a 43 day vacation.

This schedule provides for 172 days in school. However, additional days can be made up through a variety of methods to increase the school year to 175 or 180 days. In the Jefferson County schools in Colorado where this plan is in use, secondary schools make up extra days by overlapping two days in a large group for registration and orientation, while the students ending the terms fill the classrooms. In elementary schools children are given project work to be done outside the school to make up the extra days. Days could be made up through independent study, intersession programs, or creative off-campus activities. In some cases, lengthening the school day has been tried to make up extra time or day equivalents.

3. The Quarter Plan

This is the best known and easiest understood YRS plan. It was the first year-round calendar implemented in the early 1900's soon after the adoption nationvide of the common nine-month school pattern.

The Quarter Plan divides the calendar into four 12-week periods: fall, winter, spring, and summer. Students may select or may be assigned to any combination of three of the four quarters. The curriculum is organized so that each quarter is a separate entity.

Like the 45-15 Plan, this calendar has the potential of increasing the capacity of a school by 33 per cent. It differs from the 45-15 schedule in that it has longer vacation periods.

4. The Quinmester Plan

The Quinmester Plan offers five nine-week semesters or terms. Students attend any four of the five if it is voluntary, or are assigned four or five if mandated. This plan has been particularly popular at the high school level.

Under this plan the faculty must put each course into a nine-week package so that the student begins and ends the course within the nine-week period. Thus, any combination of Quins is possible. If mandated, this plan can increase building capacity by 25 per cent.

5. The Concept 8 Plan

In Concept 8, the year is divided into eight six-week blocks of time. Students attend, either by choice or by assignment, six of the eight terms. If students are assigned so that enrollment will be balanced, usually terms one and five, two and six, three and seven, and four and eight are paired with students following the two assigned as their vacation cycle. Exceptions can be made on an appeal basis for individual needs.

This plan requires that the curriculum be placed in six-week units. This makes it appealing to secondary programs. It can also be a good compromise between elementary and secondary levels and thus be used effectively in K-12 programs.

Concept 8 has the potential of adding 33 per cent to the capacity of a building.

6. The Trimester Plan

The Trimester has been attempted off and on over the years. The true year-round trimester version has never stuck in the public schools. It calls for three equal semesters throughout the year. Students attend two of the three semesters. A difficulty in this plan is that it cannot provide 172 or 180 days in school. Therefore, under this calendar, days must be made up by independent study or a longer school day. Schools have found Concept 6 more easy to work with and both have the potential of increasing building capacity by 50 per cent.

7. Flexible Plans

Several plans for year-round school have been advanced that are truly flexible and allow in and out movement almost at the desire of the child or parent. Such plans require an individualized curriculum that each child follows. These plans can increase capacity fully only if the calendar for each child is mandated. Yet, if the calendar is mandated much of the attractiveness is lost. The degree to which such plans increase capacity depends, then, on how the children attend school or the patterns of attendance that are mandated by the district. Such plans include the 45-15 flexible plan, the flexible all-year plan, and the personalized all-year plan.

The 45-15 flexible plan allows students with non-usual need for vacation time or illness to take longer than 15 days at a time, yet provides for 180 days attendance. The approach is more personalized; hence, students and families have the flexibility of coming or going as they wish. Actually, this plan provides for most students the 45-15 staggered plan

discussed in "1" above, yet for some students provides a flexible all-year calendar.

The flexible all-year plan usually calls for school to be open 240 days a year. Students can attend any 180 days. This means learning must be individualized and students be able to leave and enter as they wish. This plan will extend the capacity of the plant, but by how much depends on how evenly students' attendance is spread over the year.

The personalized continuous-year plan is the ultimate in flexibility. It requires a truly personalized curriculum and a flexible organization to conduct this calendar. Students may drop in, drop out, speed up, slow down, start, stop, interrupt any time during the year. There is group interaction, but on a small group interest and need basis. The school is open about 240 days a year and students may attend all 240 days or may come and go throughout the year as long as they are working toward 180 days, but a great deal of learning may take place off campus. This plan could save space on a voluntary basis, but if time were mandated to save space, much of the characteristics of the program would be lost.

8. The Multiple Access Plan

This is basically a variation of a 45-15 calendar. In the plan, as first proposed, courses run for nine weeks; however, rather than starting and ending all courses at the same time, opening and closing dates are staggered on a three-week interval. Some classes, for example, could start July 10. Others start at three-week intervals later in the summer. Nine weeks later, the courses started July 10 are completed, so those students and teachers are free to select new courses all with different starting dates. This means that students can start or stop their school attendance at any three-week period that follows their nine weeks of courses, or can put several three weeks together for extended vacation. This plan can provide a 33 per cent increase in capacity if equal groups are kept in school year round.

9. Creative Curriculum and 100 Per Cent Space Increase

If maximum space is required and if the district wants to move toward creative living-learning systems, this plan can increase a high school capacity 100 per cent.

The students are divided into four equal groups. At a given time two groups are in the school building, one group is occupied in community projects, independent study, or work-learning projects set up and monitored by the school but

not in the school building, and one group is on vacation. This means, for example, that a high school built for 1,000 students can accommodate 2,000 students.

10. Other Plans

There are many other year-round plans that have either been proposed on paper and never implemented or that have been implemented for a short time and dropped. Many of these are local variations of some of the plans described above.

For a school district interested in investigating a year-round program, there is a sufficient variety of plans that one to fit the district can be found and examined in light of some other district's experience with that plan.

THE EFFECT OF YRS ON STUDENTS

Basically there are two principal reasons for districts to adopt year-round schools:

1. To provide expanded educational opportunities for students along with more flexible vacation schedules.

2. To provide for the greatest possible utilization of school facilities in order to minimize school building construction in areas of expanding population.

Since this report examines YRS programs as an alternative to school building construction, such programs will be considered educationally successful if they have comparable quality to traditional programs, or if they do not have an adverse effect on learning. This section, then, will look at what is known about the effect of YRS on learning.

Irene Muzio, in a study of year-round schools, states that:

> Educators caught up in change and anxious to relieve financial and social pressures often lose sight of the function of the school--the education of students. A review of the literature on educational innovation reveals that the effect of change on the student is seldom systematically measured. Comprehensively studying the effects of change on the student is a complicated methodological problem due to the vast number of variables present in the school system. Even when student gains or losses can be documented from one year to the next, it is impossible to point to one single variable such as YRS as the major cause of this student change unless all other independent variables have been held constant--a methodological difficulty when using the public schools as the laboratory. It is not surprising, then, that few educators have undertaken to systematically measure and report the effects of change on the student. In this respect, year-round educators have proven to be no different than their colleagues; the effect of YRS on students is seldom systematically assessed and reported.[3]

This is not to say that evaluation has not been a part of YRS programs. Actually, most have attempted some sort of evaluation and the effect on students has generally been central to such efforts. The problem is that such evaluations and measurements have been characterized by questionable methodology. Generally, such measurement has resulted in contaminated data which prevents precise, specific conclusions on the effects of YRS on students. Such studies, however, do provide the basis for some valid generalizations about YRS in comparison with traditional calendars. Some of these follow:

Measurements of the affective impact of YRS on students show that a majority of students in the YRS programs like those programs, and that this liking increases as the time spent in the program increases. In the La Mesa Spring Valley School District in California, for example, results of student questionnaires showed that 84 per cent of the students enjoyed the short vacations of YRS and that 85 per cent of the YRS students showed a greater interest in the education program.[4]

In Colorado Springs, student questionnaires given during the first year of YRS showed that a majority of students would have preferred to return to a traditional school year; however, a questionnaire given during the second year of YRS showed a reversal of attitude with a majority wishing to stay on a year-round schedule.[5] Studies of affective changes in other YRS districts generally support the year-round program. In Lakeside, California, 53 per cent of the students preferred YRS, 28 per cent preferred traditional, and 17 per cent had the same feeling for both.[6] In San Diego, 54 per cent preferred YRS, 28 per cent traditional. Of parents in Chula Vista, California, 69 per cent felt that their children liked YRS.[7]

Measurement of the cognitive effects of YRS on students is usually based on two types of data: results of questionnaires and results of achievement testing. This measurement is subject to the methodological weakness mentioned above. However, there are overwhelming data from both sources to validate the conclusion that learning is as effective under YRS as it is under traditional programs. This is verified by the results of surveys in several YRS districts.[8,9,10,11] Such testing repeatedly shows little difference between students on YRS and those on traditional calendars.

In looking at the educational implications of the YRS programs, it must be pointed out that proponents of such plans as well as many administrators in YRS programs maintain that there are educational advantages to year-round school which are self evident and are rationally derived, but which have not been tested experimentally. It is the opinion of these people that some of these educational advantages are:

1. Because of shorter vacations, less learning loss occurs. This supposedly would have great significance in the case of disadvantaged students where such loss is a real problem.

Pupils can maintain a higher level of learning skills with shorter vacations from school.

2. YRS results in less student boredom.

3. The progress of change itself is a positive factor. It means that every school changing to YRS would have to examine all aspects of the school, including the curriculum, and see that all were reconsidered and justified.

4. While not unique to YRS, individualized, personalized education is well suited to and highly visible in a YRS program.

In summary, studies dealing with the effect of YRS on students and their education are neutral (with positive overtones) with regard to the educational impact of YRS. It is a fair generalization to say that while YRS may not significantly improve the education of students, it certainly provides a quality of education at least equal to that provided in traditional calendars. In addition, YRS provides an opportunity for the district to examine what it is doing with a view to improvement.

THE FINANCIAL EFFECT OF YRS

In discussing the financial impact of year-round schools on a school district, it is necessary to define the YRS conditions that make this impact. If YRS is to save money, it must provide for an increase in the capacity of present buildings. Moreover, student load must remain fairly constant over the total school year and must be increased significantly over the yearly load in the traditional program. Not only are these conditions necessary to insure capital cost savings, but they are also required to maintain an operations and maintenance cost per pupil that is not in excess of that in the traditional program. Studies that show increased costs under YRS programs generally have not met these conditions.

It is difficult to say, based on the studies of YRS in the literature, precisely how much a YRS program can save a school district. A few studies report increased costs of one per cent to three per cent; most have found savings up to eight per cent. Given that capital costs account for only 15 per cent to 20 per cent of a school's budget and that a YRS program's greatest cost impact is on capital costs, an annual savings of 12 per cent to 15 per cent seems to be the outside limit for YRS program savings. In a school district faced with expanding enrollments and increasing space need, it is reasonable to expect to save about eight per cent of its total annual budget with a carefully planned YRS program. This is computed on an annual, not a one-time basis: A YRS program saves money every year it is in operation, with capital costs computed over the life of buildings. Put another way, an eight per cent annual savings mean the taxpayers get one year of schooling free for every 13 years the YRS program is in operation.

This report is primarily concerned with the effect YRS would have on school construction. Fears have been expressed that although capital costs are reduced by year-round programs, operating costs, particularly start up costs, maintenance costs, and transportation costs will be increased sufficiently to offset the gains made in capital costs. In studies of districts where capacities of buildings have been significantly increased (25 per cent or more), YRS operating costs per pupil do not increase in most instances. Actually, most such studies show a slight per pupil decrease in operating costs. There is sufficient evidence to show that no district contemplating YRS should be unduly concerned with increasing per pupil costs for operations and maintenance.

One of the most complete and respected studies of YRS programs was that made by the Stanford Research Institute of the year-round schools in the Pajaro Valley Unified School District in California.[12] This study examined the YRS program in one junior high school and its four feeder elementary schools for the year 1975-76. In this study a cost analysis was made of the actual costs incurred in the YRS program and these were compared with those costs that would have been incurred if the same education program had been provided to the same students in a traditional program. In this way the impact of the YRS program was determined on capital, operating, and transitional (start-up) costs.

The study found that the district's per pupil cost of education was reduced under YRS by 4.1 per cent. More than 90 per cent of this savings came from more efficient use of space, i.e., capital savings. This savings would have been 4.7 per cent if the district had not owned school sites. It also found that operating costs were reduced somewhat. Transitional costs were determined to be $826 total, annually, for the district. Overall the district was avoiding the $138,248 in construction costs each year and would continue to avoid these costs until the cost of the construction avoided was amortized.

In a study of the economic impact of the Concept 6 program on the schools in the Jefferson County School District in Colorado, Price, Waterhouse and Company found that:

1. The averages of certain per-pupil annual operating costs at the school level in both of the two Concept 6 attendance areas are within the range of the same costs in the ten traditional attendance areas.

2. The averages of certain per-pupil annual operating costs at the school level in both of the two Concept 6 attendance areas are approximately $26 below the average of the same costs of the ten traditional attendance areas.

Both the above studies confirm the assumption that per-pupil operating costs need not increase under a year-round program where school capacity is increased.

There is one cost associated with YRS that must be reckoned with: that is start-up or transitional cost. Some effort and expense are involved in changing from a traditional calendar to a year-round calendar. Staff will need some additional in-service training: curriculum will need to be revised to meet the new, usually shorter, periods of instruction; administration will need to develop new schedules for buying and distributing materials and allocating resources; and maintenance and the custodial crews will need to develop new work schedules. The most significant start-up cost, however, is in air-conditioning buildings not already so equipped to handle summer classes. Those start-up costs were included in the analysis of costs given in the studies quoted above.

In the introduction to this report it was pointed out that in December, 1978, the Division of Education Support Services of the State Office of Education projected a $1.7 billion need for school construction in Utah during the next decade. The exact amount of that estimate was $1,738,158. Table I gives a breakdown of this projection by district.

If school districts were to adopt year-round programs instead of constructing buildings when enrollments require additional space, these projected costs would be reduced dramatically. Theoretically, YRS can increase a school's capacity up to 50 per cent. To achieve this increase of capacity in a real situation would be almost impossible; but, to achieve an increase of 33 per cent is a reasonable expectation with a Concept 6 Program. With this increase in capacity of 33 per cent, $888,022,000 could be cut from the estimated $1.7 billion construction needs. Table II shows a district-by-district projection of these costs.

In December, 1979, the Division of Education Support Services updated these projections through 1983-84. This update estimated a total of cumulative building need for Utah by 1983-84 of $528,113,000 (Table III) of which $457,073,000 was needed for growth. If instead of construction, school districts were to adopt a year-round program producing a 33 per cent increased capacity in present buildings, the $457,073,000 for growth could be totally eliminated, since no new school buildings to accommodate growth would be needed.

Site acquisition for new schools would be substantially reduced if school buildings are not being constructed. The State Office of Education estimates a cost avoidance of over $53 million in site purchases in the next decade if year-round schools were used as an alternative to school building construction.

As mentioned earlier, start-up or transitional costs are associated with the implementation of YRS programs. These costs would reduce the savings estimated above. It is assumed that all buildings used in YRS programs would have to be air conditioned. To air condition all buildings not now air conditioned in those districts that could use YRS instead of construction, the cost is estimated at $45 million.

TABLE I

UTAH SCHOOL BUILDING NEEDS COST PROJECTION - GROWTH
-IN THOUSANDS OF DOLLARS-

No.	District	CRITICAL BUILDING NEEDS 79-80	ENROLLMENT AND INFLATION ADJUSTMENTS 79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	CRITICAL BUILDING NEED GROWTH TOTAL
				INCREMENTS FOR GROWTH									
				$67	$73	$81	$89	$97	$107	$118	$130	$143	
01	Alpine	21,552	6,710	9,624	13,522	18,347	22,398	25,621	29,523	30,140	42,857	41,650	261,944
02	Beaver	1,345	269	0	0	0	0	0	0	0	0	0	1,614
03	Box Elder	1,245	349	0	0	0	0	0	0	0	0	372	2,466
04	Cache	5,671	1,940	1,908	2,875	3,919	10,418	441	7,478	6,793	4,123	13,475	59,041
05	Carbon	2,839	1,419	1,626	2,651	3,087	4,294	4,591	5,653	7,462	5,795	7,483	46,895
06	Daggett	80	16	0	0	0	0	0	0	0	0	0	96
07	Davis	11,163	4,752	6,463	8,940	9,406	20,415	21,347	17,542	21,962	24,646	29,319	175,955
08	Duchesne	2,800	560	0	434	410	578	758	671	1,116	0	173	7,500
09	Emery	696	727	2,904	4,103	5,544	7,371	9,083	10,958	12,481	16,031	18,116	88,014
10	Garfield	348	70	0	0	0	0	0	0	0	0	1,016	1,434
11	Grand	481	96	0	0	0	0	0	0	0	0	0	577
12	Granite	7,257	1,451	0	0	0	10,036	10,342	21,419	12,944	17,967	15,743	97,159
13	Iron	848	170	0	1,682	2,773	3,419	3,726	3,847	4,482	5,439	6,044	32,435
14	Jordan	5,752	3,258	20,764	32,112	41,807	42,431	55,260	63,748	63,525	76,984	95,280	500,906
15	Juab	4,486	897	0	0	0	0	0	0	0	602	663	6,646
16	Kane	1,939	388	128	196	290	359	326	431	515	612	416	5,310
17	Millard	1,713	343	0	0	0	0	0	0	0	0	1,055	3,111
18	Morgan	42	8	0	0	0	0	0	0	0	0	0	50
19	Nebo	8,875	2,640	5,000	6,407	9,161	11,113	12,410	15,799	16,798	19,719	21,226	129,158
20	No. Sanpete	4,826	965	588	711	1,040	1,162	1,287	1,340	1,578	1,683	1,729	16,909
21	No. Summit	37	7	0	0	0	0	404	382	435	495	545	2,305
22	Park City	40	8	0	0	0	0	0	391	459	476	17	1,391
23	Piute	77	15	0	0	0	0	0	0	0	0	0	92
24	Rich	304	61	0	0	0	0	0	0	0	0	0	365
25	San Juan	1,002	200	0	0	0	0	0	0	1,359	1,630	1,369	5,560
26	Sevier	2,230	991	1,329	2,745	3,493	3,247	1,762	4,897	6,256	6,653	14,044	47,797
27	So. Sanpete	4,948	990	289	377	564	726	1,094	706	1,699	2,839	1,733	15,965
28	So. Summit	247	49	0	0	0	0	289	382	407	449	511	2,334
29	Tintic	1,371	274	0	0	0	0	0	0	0	319	368	2,332
30	Tooele	2,220	444	186	178	396	869	969	1,093	1,310	1,270	1,079	10,014
31	Uintah	1,136	227	1,315	1,366	2,031	2,765	3,521	3,954	4,810	5,498	5,424	32,247
32	Wasatch	1,646	720	753	883	1,777	1,457	2,211	2,164	1,591	4,562	3,382	21,146
33	Washington	2,475	615	1,800	2,625	3,605	4,436	4,188	3,931	5,665	6,176	11,159	46,655
34	Wayne	257	51	0	0	0	0	0	0	207	228	251	994
35	Weber	5,254	1,686	3,327	3,130	6,144	6,293	8,082	9,891	9,443	15,989	4,009	73,248
36	Salt Lake	6,161	1,232	0	0	0	0	0	0	0	0	0	7,393
37	Ogden	2,009	402	0	0	0	0	0	0	0	0	0	2,411
38	Provo	3,226	2,750	485	1,288	1,956	2,290	1,782	3,112	2,936	3,058	2,898	25,781
39	Logan	898	180	0	0	0	0	0	0	0	0	0	1,078
40	Murray	1,358	272	0	0	0	0	0	0	0	0	0	1,630
	TOTALS	121,357	38,202	58,539	86,340	115,745	156,177	169,474	209,112	216,353	266,100	300,559	1,238,158

TABLE II

ALL DISTRICTS USING YEAR-ROUND SCHOOLS

UTAH SCHOOL BUILDING NEEDS COST PROJECTION - GROWTH
-IN THOUSANDS OF DOLLARS-

No.	District	CRITICAL BUILDING NEEDS 79-80	ENROLLMENT INFLATION ADJUSTMENTS 79-80	$67 80-81	$73 81-82	$81 82-83	$89 83-84	$97 84-85	$107 85-86	$118 86-87	$130 87-88	$143 88-89	CRITICAL NEED TOTAL
01	Alpine	21,552	6,710				178	19,216	22,142	22,605	32,143	31,237	155,783
02	Beaver	1,345	269										1,614
03	Box Elder	1,745	349										2,094
04	Cache	5,671	1,940						2,286	5,095	3,092	10,106	28,190
05	Carbon	2,839	1,419					2,582	4,240	5,597	4,346	5,612	26,635
06	Daggett	80	16										96
07	Davis	11,163	4,752										15,915
08	Duchesne	2,800	560								8,359	21,989	46,263
09	Emery	696	727										3,360
10	Garfield	348	70			3,724	5,529	6,812	8,218	9,361	12,024	13,587	60,678
11	Grand	481	96										418
12	Granite	7,257	1,451										577
13	Iron	848	170										8,708
14	Jordan	5,757	3,258						1,546	1,362	4,079	4,533	14,538
15	Juab	4,484	897				19,275	41,430	47,811	47,644	57,738	71,460	294,373
16	Kane	1,939	388										5,381
17	Millard	1,713	343										2,327
18	Morgan	42	8										2,056
19	Nebo	8,875	2,640										50
20	No. Sanpete	4,826	965					6,493	11,850	12,599	14,789	15,927	73,173
21	No. Summit	37	7					381	1,005	1,184	1,262	1,297	10,920
22	Park City	40	8										44
23	Piute	77	15										48
24	Rich	304	61										92
25	San Juan	1,002	200										365
26	Sevier	2,230	991										1,202
27	So. Sanpete	4,948	990					1,004	1,873	4,692	4,990	10,533	28,113
28	So. Summit	247	49									927	6,865
29	Tintic	1,371	274										296
30	Tooele	2,220	444										1,645
31	Uintah	1,136	227										2,664
32	Wasatch	1,646	720							1,929	4,123	4,068	11,483
33	Washington	2,475	615					506	1,623	1,193	3,422	2,536	11,646
34	Wayne	257	51						2,378	4,234	4,632	8,369	22,701
35	Weber	5,254	1,686										308
36	Salt Lake	6,161	1,232										6,940
37	Ogden	2,009	402										7,391
38	Provo	3,226	2,750										2,411
39	Logan	898	180										5,976
40	Murray	1,350	272										1,078
	TOTALS	121,357	38,202	0	0	3,724	24,982	78,424	108,772	119,495	154,999	202,181	850,136

TABLE III

JUR YEAR UTAH PUBLIC SCHOOL BUILDING COST PROJECTION
(In Thousands of Dollars)

District	Critical Building Needs 1980-81	1981-82	1982-83	1983-84	Total
Alpine	$ 16,082	$ 14,837	$ 19,141	$ 22,900	$ 72,960
Beaver	1,578	-0-	-0-	-0-	1,578
Box Elder	2,224	-0-	-0-	-0-	2,224
Cache	5,070	2,558	4,500	4,917	17,045
Carbon	768	2,599	2,991	4,176	10,534
Daggett	95	-0-	-0-	-0-	95
Davis	21,174	8,759	11,948	14,335	56,216
Duchesne	3,292	-0-	838	950	5,080
Emery	277	3,060	3,652	5,396	12,385
Garfield	405	-0-	-0-	-0-	405
Grand	725	1,209	1,397	2,037	5,368
Granite	8,049	-0-	-0-	-0-	8,049
Iron	993	-0-	2,357	3,124	6,474
Jordan	35,474	27,920	48,721	58,273	170,388
Juab	311	-0-	-0-	422	733
Kane	2,396	253	445	608	3,702
Millard	2,584	-0-	-0-	1,260	3,844
Morgan	33	-0-	-0-	-0-	33
Nebo	11,900	6,322	7,942	7,179	33,343
North Sanpete	5,722	1,117	1,118	1,447	9,404
North Summit	218	-0-	-0-	-0-	218
Park City	45	913	927	1,008	2,893
Piute	85	-0-	-0-	-0-	85
Rich	285	-0-	-0-	-0-	285
San Juan	1,178	-0-	-0-	-0-	1,178
Sevier	3,830	2,258	2,534	3,777	12,399
South Sanpete	3,474	946	603	1,057	6,080
South Summit	114	-0-	-0-	-0-	114
Tintic	1,551	-0-	-0-	-0-	1,551
Tooele	2,462	583	611	1,768	5,424
Uintah	3,689	1,392	1,360	1,814	8,255
Wasatch	1,710	695	858	895	4,158
Washington	6,308	3,606	4,244	5,730	19,888
Wayne	415	-0-	-0-	-0-	415
Weber	6,157	4,249	4,478	8,495	23,379
Salt Lake	5,581	-0-	-0-	-0-	5,581
Ogden	1,995	-0-	-0-	-0-	1,995
Provo	3,375	2,736	2,654	2,944	11,709
Logan	1,049	-0-	-0-	-0-	1,049
Murray	1,597	-0-	-0-	-0-	1,597
TOTALS	$164,270	$86,012	$123,319	$154,512	$528,113

Source: Utah State Office of Education. Education Business Services, December 3, 1979.

Other start-up costs include in-service training for staffs, curriculum revision, and administrative procedural changes. Such costs have varied greatly in the schools that have implemented YRS programs and would undoubtedly vary in Utah. In California, each district adopting a YRS program was allocated $25,000 for start-up costs. In Colorado, $25,000 was budgeted for start-up costs excluding air-conditioning for 15 schools. Of this only $8,000 was used. In other studies where start-up costs are reported, they have averaged less than $25,000 per district. On this evidence, it is unlikely that start-up costs would exceed an average of $25,000 per district in Utah, thus for 16 districts this would amount to $400,000.

In summary, it is estimated that implementing YRS programs instead of building new buildings could save an estimated $888,022,000 in building costs and $53,000,000 in site costs over the next decade. However, start-up costs for YRS are estimated at $45 million for air-conditioning and $400,000 for in-service training, curriculum revision, and administrative changes. Thus a net reduction in costs is estimated at $895,622,000 for building and sites over the next 10 years if YRS programs were substituted for school building construction.

ATTITUDE OF THE PUBLIC TOWARD YRS

Dr. Don Glines, who was the director of the year-round school effort in California for the California State Department of Education in the early and mid seventies and who is recognized as a national authority on year-round schools, was asked recently to sum up the attitude of parents in California school districts toward YRS prior to its implementation in those districts. Dr. Glines said that in practically every district the pattern of response was the same: 40 per cent of the parents were undecided, but open-minded about YRS; 30 per cent were enthusiastic about implementing YRS; and 30 per cent were strongly opposed to YRS. He stated that at least 30 per cent would volunteer for YRS and in some districts volunteers represented 70 per cent of those interviewed. He further stated that attitudes toward year-round school improved after implementation of the program.

A study of the literature on YRS confirms Dr. Glines' assessment. Robert Bouga researched the attitude of parents in 20 year-round schools in southern California whose children attended schools on a 45-15 plan.[13] He concluded that parents preferred YRS for their children over the traditional plan and that parents did not consider YRS deleterious to family activities and vacations. Roy L. Bragg, in summarizing his examination of doctoral dissertations on YRS, states that these studies "...confirm that parents, students, and teachers in many communities are supportive of the concept of year-round education and can visualize the benefits which can occur from the flexibility in the year-round use of time."[14]

The study of the Pajaro Valley Unified School District by the Stanford Research Institute referred to earlier in this report included interviews with 943 parents equally divided among those with children in YRS and those with children in traditional programs. They found that over 70 per cent of the YRS parents preferred that program and that over 75 per cent of the YRS parents believed the program helped improve the schools, lower juvenile crime, and provide migrants with better education.

The study also showed that YRS parents' attitudes had gotten progressively more positive toward the program from 1972 to 1977. Twenty per cent of the YRS families found it more difficult to plan vacations while 40 per cent found it easier. Once parents had direct experience with YRS, the majority came to prefer it to the traditional program.

In this connection a recent telephone conversation with Dr. William D. White, who has directed the YRS effort in the Jefferson County Public Schools in Colorado, is reported. The Jefferson County Public Schools have 32 of the system's 110 schools on year-round schedules and have had since July, 1974. This was done in the fast growing areas of the school districts to avoid construction costs. Dr. White reports that they are now faced with a problem in that the enrollment in some of the YRS schools is beginning to decline. Soon it will no longer be economically feasible to continue the year-round calendar because of the declining enrollments. However, parents and students in the YRS programs are saying that they will refuse to return to a traditional school year.

This same problem is confronting educators in the Valley View Community Schools in Illinois. In this system YRS has been in operation for the past 11 years in Grades K-12. Dr. James R. Gove reports (telephone conversation May 5, 1980) that enrollment decreases are forcing that district to return to a traditional nine-month schedule, and that this transition is meeting with considerably more resistance from parents and students than did the original transition from the traditional program to YRS.

Utah has no school in year-round programs as defined in this report. The National Reference Directory of Year-Round Education Programs for 1979-80 lists two elementary schools in Nebo School District as having YRS programs; however, these schools do not have programs that increase the capacity of the buildings, but rather provide for longer attendance for those students who wish it as well as enrichment programs in the summer months. Thus we cannot assess the feelings of the public in Utah toward YRS on the basis of experience. Three recent surveys, however, do give some information on the present feelings of Utahns toward school building construction and alternatives to such construction.

The Salt Lake Tribune of December 9, 1979, reported the results of a statewide poll conducted by Bardsley and Haslacher, Inc.[15] Results were based on 590 face-to-face interviews where the following question was asked:

"It is estimated that by 1984, Utah Schools will have to handle a yearly increase of more than 16,000 students, which means an increase in school construction costs of approximately $1.7 billion. Which of these methods do you feel would be best in helping to cope with this problem?" (See alternative below.)

Build More Schools	41%
Year-round School	26%
Double Sessions	15%
Other	12%
Individual	6%
TOTAL	100%

The other responses included such plans as busing, middle schools, and more efficient use of facilities. A breakdown of responses by age groups showed that self-interest was reflected in the selection of options. Those likely to have children in school chose the "build more buildings" option; others tended to choose other alternatives. Here are the age breakdowns reported:

AGE	MORE SCHOOLS	YEAR ROUND	DOUBLE HOURS	OTHER	UNDECIDED
18-29	54%	20%	14%	5%	7%
30-44	44%	33%	9%	11%	3%
45-59	33%	31%	17%	14%	5%
60	28%	24%	10%	.17%	10%

At first glance it appears that "building more schools" is the overwhelming first choice of the people who would prefer alternatives to building schools; the alternative liked best is some sort of year-round school.

Of the alternatives to building more schools, the extended year, with 26 per cent, was the favorite option for those interviewed. Thus this survey, at least, shows that among those people who would prefer alternatives to building schools, the alternative liked best is some sort of year-round school.

A survey of parents of elementary school children in Jordan School District completed this spring by Dr. David Nelson, Utah State Office of Education, for the Jordan School District gave somewhat different results.[16] In this survey parents were asked which of five alternatives they found most acceptable and most unacceptable (Table IV). The least acceptable option in this survey was year-round school.

A statewide survey of public opinion on school problems sponsored by the PTA and directed by Dr. Nelson is just now being completed.[17]

TABLE IV

Results From Jordan School District Survey of Parent Opinion on Options For Providing Space For Elementary Level Students

Item A. In your opinion, which of the following options would be most acceptable in accommodating the Jordan School District's elementary school students for which the District will not have permanent classroom space in a neighborhood school in the next few years?

Options	Percentage of Parents Marking Each Scale Point			Average Rating For Item
	Unacceptable (1)	Generally Acceptable (2)	Very Acceptable (3)	
1. Double sessions at neighborhood school.	52%	31%	17%	1.7
2. Bus students from rapidly growing areas/subdivisions to another Jordan District school which is not so crowded.	15%	54%	31%	2.2
3. Bus students from rapidly growing areas/subdivisions to a Granite District elementary school leased by Jordan District and staffed by Jordan teachers.	30%	49%	21%	1.9
4. Bus students from rapidly growing areas/subdivisions to one of several existing Granite District elementary schools staffed and operated by Granite School District.	45%	38%	17%	1.7
5. Keep elementary schools open year-round with students attending four out of five sessions.	65%	20%	15%	1.5

Average number of parents responding to each option = 730

The sample used in this survey was statewide, school oriented, and heavily weighed toward parents (85 per cent parents in the survey vs. 66 per cent in the general population). The results showed "construct additional buildings" and "purchase additional portable classrooms" as being by far the most acceptable options for dealing with enrollment increases and double sessions and year-round school the least acceptable.

From these studies it appears that parents in Utah feel that building new school buildings, despite the cost, is a preferable option to any of the alternatives. However, the general public is just about evenly split between preference for construction and preference for some alternative to construction.

Finally, the voting history of Utahns on bond elections offers some convincing evidence that people here prefer to build buildings to handle growth. No Utah district has yet been forced into some alternative to school building construction because of the defeat of bond issues.

CHAPTER IV - EXTENDED SCHOOL DAY - DOUBLE SESSIONS

The extended school day, usually in the form of double sessions in elementary schools and overlapping periods in high schools, has been the most frequently used strategy for school districts to handle overcrowding while awaiting new construction. Despite the wide use of double sessions and extended day programs, the literature is almost devoid of studies dealing with them. Generally, a school, or several schools in a district, faced with overcrowding will move into double sessions to deal with the problem while a new facility is being constructed. Since the experience is generally temporary, few districts have made an attempt to study and evaluate this alternative.

An extended school day has usually meant double sessions in elementary schools. In high schools an extended school day program is typically one where the day is stretched out to accommodate more students. An example of the extended day on the secondary level is the program that was proposed for operation at Bingham High School in Jordan School District. The following is a description of that program.

1. The school facility was to be scheduled for ten 49-minute periods each day as follows.

SCHEDULE 1

1	2	3	4	5	6	7	8	9	10
7:30 to 8:19	8:25 to 9:14	9:20 to 10:09	10:15 to 11:04	11:10 to 11:59	12:05 to 12:54	1:00 to 1:49	1:55 to 2:44	2:50 to 3:39	3:45 to 4:34
1 (11-12)	2	3	4 1 (9-10)	5 2	6 3	7 4	8 5	9 6	10 7
BUS			BUS				BUS		BUS

2. Students would register for only six classes.
3. Eleventh and twelfth grade students would begin school first period and would attend fourth and fifth period lunches.
4. Ninth and tenth grade students would begin school fourth period and would attend sixth or seventh period lunches.
5. Teachers would be served fourth, fifth, sixth, and seventh periods.
6. Students to be bused would arrive before the first or fourth periods and leave after the seventh or tenth periods.

This schedule has the potential of increasing the capacity of the school by about 35 per cent.

A review of education journals and periodicals and an ERIC search turned up only a handful of articles and studies on the extended day,

most of which were concerned with strategies for avoiding double sessions. None of these was current, the latest being published in 1971. The studies are inconclusive as to the effect of double sessions on education. What little evidence they present shows no significant difference in terms of education between the extended day and traditional schedules. However, these studies are so poorly done that even this conclusion is suspect. More research is needed on the effect of the extended day on the education of children.

None of the studies gives definitive information on cost comparisons between extended day and traditional day schedules. Most pointed out that extended day programs would increase the capacity of building from 33 per cent to 100 per cent and thus decrease school construction needs.

The feeling of parents as revealed by these studies was that double sessions or overlapping periods were more desirable than overcrowding, but not a desirable alternative to building new buildings. Teachers generally opposed double sessions as a permanent mode, except a significant minority reported favoring teaching on the first shift over teaching the traditional day.

In Utah, too, there has been more experience with extended day-double sessions than with any other alternative to school building construction. Recently, Alpine, Jordan, and Davis school districts have used double sessions to relieve overcrowding while awaiting new construction. Twenty years ago Granite School District had several schools on double sessions. However, in every case the double sessions-extended day programs have been considered only temporary solutions to overcrowding, and no single school has been involved in the program for a significant time, usually only a few months. As a result no evaluation of these programs has been made.

Some Jordan educators with current experience in double sessions in elementary schools were of the opinion that art, music, dance, and physical education suffer in double sessions because of the tendency in such programs to stress basics. Some were of the opinion that morning sessions were more productive than in traditional schools. However, others insisted there was no marked change in pupil performance, even in the late afternoon.

There has been a belief among some parents that double sessions provide inferior education for their children. The extent of this belief is not known, but educators in districts that have used double sessions report this among some parents.

With evidence as scant as this, it is not possible to generalize as to the effect of extended day-double sessions on the education of children in Utah. Theoretically, quality education should be possible under double sessions. However, there are insufficient data at this time to say whether or not this is actually the case.

Double sessions or extended day can have an emphatic effect on the cost of school construction. In elementary schools double sessions can increase the capacity of a school up to 100 per cent. In secondary schools scheduling to accommodate double sessions is more difficult. Because of the many activities, some extra-curricular, and because of the variety of classes, a 70 per cent increase in capacity is probably a maximum.

If all Utah school districts would begin next year (1980-81) to accommodate growth through the use of double sessions in elementary schools and extended day in secondary schools increasing capacities by 100 per cent and 70 per cent respectively, the total estimated cost for school building construction through 1989 could be reduced from $1.7 billion to $280 million. Only five districts would need to construct facilities to accommodate the growth projected through 1989, and all of these could finance construction through local resources. Table V shows the estimated impact of these alternatives by district.

Double sessions would have an effect on other costs related to facilities not considered above. Custodial and maintenance costs would increase in a school with an extended school day because of the increase in use. However, it is a reasonable assumption that such costs would not exceed those for custodial and maintenance care of the new school this alternative replaces. An undetermined factor of cost is the effect such extended use would have on the life expectancy of the school building. No studies on this are available and since the use of such programs has been very limited in time in any particular school, no clues as to the expected life of a building so used can be found from experience. However, schools generally are replaced because they become obsolete rather than because they wear out. Hence it is assumed that with proper maintenance and custodial care the life expectancy of a school building would not be significantly reduced because of extended use.

There is no doubt that capital costs for school facilities can be reduced greatly by the use of extended school day schedules. However, a review of literature and contacts with several states does not show a single instance where the extended day or double sessions has been used as a permanent solution to a building problem. This is probably due, in part, to a negative feeling by parents and educators toward such programs.

Available data show the feelings of Utah parents on double sessions. A survey of parents' opinions recently completed in and for Jordan School district by Dr. David Nelson of the Utah State Office of Education, referred to in Chapter II, shows that 52 per cent of the parents polled found double sessions unacceptable as an option for accommodating students where the district does not have permanent classroom space. These parents preferred busing students over double sessions.

The statewide Tribune poll, referred to in Chapter II, showed that new building construction or year-round school was preferable to double sessions in meeting school building needs in Utah.

In the poll conducted statewide by David Nelson for the Utah P.T.A., double sessions ranked with year-round school as the least acceptable option for meeting enrollment increases.

Finally, the educators interviewed in the rapidly expanding districts in Utah were unanimous in stating that it was their opinion that parents would not accept double sessions as a permanent solution to building needs.

TABLE V

ALL DISTRICTS USING DOUBLE-SESSION SCHOOLS

UTAH SCHOOL BUILDING NEEDS COST PROJECTION - GROWTH

-IN THOUSANDS OF DOLLARS-

No.	District	79-80	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	TOTAL
01	Alpine	21,552	6,710									12,086	40,348
02	Beaver	1,345	269										1,614
03	Box Elder	1,745	349										2,094
04	Cache	5,671	1,940										7,611
05	Carbon	2,839	1,419									173	4,431
06	Daggett	80	16										96
07	Davis	11,163	4,752										15,915
08	Duchesne	2,800	560										3,360
09	Emery	696	727					3,788	5,917	6,740	8,657	9,783	32,520
10	Garfield	348	70										418
11	Grand	481	96										577
12	Granite	7,257	1,451										8,708
13	Iron	849	170										1,018
14	Jordan	5,257	3,258								22,981	51,651	83,647
15	Juab	4,484	897										5,381
16	Kane	1,939	388										2,327
17	Millard	1,713	343										2,056
18	Morgan	42	8										50
19	Nebo	8,875	2,640										11,515
20	No. Sanpete	4,826	965										5,791
21	No. Summit	37	7										44
22	Park City	40	8										48
23	Piute	77	15										92
24	Rich	304	61										365
25	San Juan	1,002	200										1,202
26	Sevier	1,136	227									3,084	4,447
27	So. Sanpete	1,646	720										5,938
28	So. Summit	2,475	615										296
29	Tintic	1,371	274										1,645
30	Tooele	2,220	444										2,664
31	Uintah	1,136	227										1,363
32	Wasatch	1,646	720										2,366
33	Washington	2,475	615										3,090
34	Wayne	257	51										308
35	Weber	5,254	1,686										6,940
36	Salt Lake	6,161	1,232										7,393
37	Ogden	2,009	402										2,411
38	Provo	3,226	2,750										5,976
39	Logan	898	180										1,078
40	Murray	1,358	272										1,630
	TOTALS	121,357	28,202	0	0	0	0	3,788	5,917	6,740	31,638	76,539	280,393

CHAPTER V - BUSING AS AN ALTERNATIVE TO SCHOOL CONSTRUCTION

Busing from areas of intense growth to areas with declining enrollments could be a viable solution for some of the growth problems in Salt Lake County. At the present time this is the only area in the state where such an option could significantly effect the need for school construction.

The Salt Lake Valley (county) contains four school districts: Salt Lake City, Granite, Murray, and Jordan. Only one of these, Jordan, is currently faced with rapidly expanding school enrollments on a district-wide basis. A second, Granite, has increasing enrollments on its west side but decreasing enrollments on the east side. Salt Lake City School District has experienced significant decreases in school enrollments over the past decade but this trend has slowed considerably and it is expected that enrollments will become relatively stable in the next few years. Murray School District has experienced decreases, but in the past two years has shown small increases indicating that enrollments there have stablized.

Results from this differentiated enrollment experience in these districts will be a demand for school building space in Jordan District beyond the ability of the district to supply; excess facility space on Granite's east side and a heavy school construction schedule on the west side; an over supply of facility capacity in Salt Lake with the resultant disposal of some school buildings; and school construction in Murray aimed at the replacement of inadequate facilities. In short, Jordan will have a need for school building space it cannot meet, while Salt Lake, and to a lesser extent Granite, will have surplus school building space.

Table VI gives the school building capacities and school enrollments expected in each of the school districts in Salt Lake County in 1981-82. These capacities are determined by a formula used by the Utah State Office of Education and may vary somewhat from such capacities determined by individual school districts. The table also gives the expected excess capacity in 1981-82 in each of the districts at each level of education as well as 90 per cent of this excess capacity. Capacities given in the Table include school construction scheduled for completion by September, 1981. This excess capacity does not result from the abandonment of total schools, but rather results from many schools enrolling fewer students than their capacity would handle.

Also shown in Table VI is an estimate for Granite, Salt Lake, Jordan, and Murray school districts, in 1981-82, of a surplus capacity of over 14,663 spaces in elementary schools, 4,710 in middle and junior high schools, and 3,765 in high schools.

Assuming that up to 90 per cent of this excess space could be used to relieve Jordan's growth and assuming that enrollment trends do not change, space for 13,196 elementary pupils, 4,238 middle school pupils,

and 3,389 high school pupils could become available to Jordan students in other districts in the county. This translates into the eventual avoidance of the need for $63.6 million capital costs in elementary schools; $32.6 million in middle schools; and $32.9 million in high schools estimated in 1981-82 construction dollars, or an estimated $129.1 million.

TABLE VI

ESTIMATED SCHOOL BUILDING CAPACITIES AND ENROLLMENTS FOR SALT LAKE COUNTY SCHOOL DISTRICTS IN 1981-82

ELEMENTARY SCHOOL

	Granite	Jordan	Murray	Salt Lake	TOTAL
Capacities	35,701	29,189	3,213	19,361	87,464
Enrollments	32,455	26,102	2,520	11,724	72,801
Excess Capacities					
100%	3,246	3,087	693	7,637	14,663
90%	2,921	2,778	624	6,873	13,196

JR. HIGH OR MIDDLE SCHOOL

	Granite	Jordan	Murray	Salt Lake	TOTAL
Capacities	14,935	10,667	1,966	4,789	32,357
Enrollments	12,734	11,614	1,110	3,106	28,564
Excess Capacities					
100%	2,171	(947)	856	1,683	4,710
90%	1,953		770	1,515	4,238

SENIOR HIGH SCHOOL

	Granite	Jordan	Murray	Salt Lake	TOTAL
Capacities	14,357	9,805	1,250	6,952	33,364
Enrollment	11,575	12,509	1,231	5,969	31,284
Excess Capacities					
100%	2,782	(2,704)		983	3,765
90%	2,504			885	3,389

It can be seen that the need for new school building construction in Jordan could be reduced significantly if excess space in Granite and Salt Lake City could be used by busing Jordan students across district boundaries. At the present time Jordan and Granite are exploring the possibility of such action on a limited basis. Is such action feasible and, if so, what would be the results educationally and financially in this course of action?

There are, of course, financial costs of busing. There are so many variables to be predicted in connection with busing that estimates of cost are not entirely satisfactory. However, estimates show that busing the number of elementary and secondary students given above would involve the use of at least 282 additional buses. Busing students an average of 20 miles one way or 40 miles round-trip daily to and from school would involve an annual cost of slightly over $2 million. The capital cost involved in purchasing needed buses is estimated at $12 million. Thus, while capital costs of over $129 million would be avoided, $12 million in capital costs and $2 million in yearly operational costs would be incurred. By rescheduling hours during which schools are operated, some capital costs of busing may be eliminated.

Factors other than finance also must be taken into account when considering a plan for busing students across district lines. As in any decision involving the education of children, the desires and feelings of the children, their parents, and the total clientele of the school district must be taken into account. While it is difficult to test feelings of the exact people who might be involved in such a plan, there appears to be some evidence available that will reasonably predict what the feelings would be. For example, across the nation patrons have uniformly resisted busing on a permanent basis to solve construction problems. It is reasonable to assume that Utah parents would feel the same way.

In the survey of parent opinion recently completed in and for the Jordan School District by the State Office of Education, the parents of elementary pupils recorded their opinions on various options for housing their students until buildings become available. Briefly, the results of the questionnaire show that a majority of parents would accept busing to Granite as a temporary solution to overcrowding in Jordan schools in preference to double sessions or year-round school. However, such busing would have to be limited to 25 minutes riding time; all students of the same grade level in an area must go the same school as well as all students in the same family; and this option should be followed only until schools are built in the Jordan District.

If busing were undertaken to Salt Lake City schools, the bus time would exceed 25 minutes and, if the capacities were used up in the various Salt Lake County schools, not all students in the same area could attend the same school. It would appear, then, that parents would resist busing to Salt Lake City District as a permanent solution to overcrowding in Jordan School District.

Four elementary school principals in Jordan District whose schools were on double sessions and the two co-directors of elementary education in the district confirmed the findings of the survey. These people are unanimous in their opinion that parents would resist efforts to bus children across district lines if children from the same family or area were put in different schools, if this were considered a permanent solution to the school housing problem.

The education of Jordan pupils bused across district lines would be affected. To achieve anything near a 90 per cent exploitation of the excess capacity in school buildings in other districts, Jordan students would have to be fitted into existing schools with existing student bodies operated by the district in which the school is located. Thus Jordan parents would have no voting control over the education in the schools concerned. Such schools could differ greatly in quality from the schools in Jordan--for better or for worse. In any event, such a course would deny control of the education of their bused students to Jordan parents through their elected board of education.

Throughout Utah, the concept of the neighborhood school has been an important one. This concept would be violated if pupils were bused across district lines.

It should be noted that busing Jordan pupils to fill unused space in other districts is in reality a temporary and not a permanent solution to the need for facilities in the district. Buildings used by Jordan students in other districts would eventually have to be replaced and at that time the full capital expense for housing these students would be felt. However, it is possible that by that time the enrollment explosion would be over and reduced enrollments would be in sight.

One final factor deserves consideration in the possibility of busing students to avoid construction costs. There is an uncertain future with respect to the supply of gasoline. The operation costs of just over $2 million annually to transport the Jordan students to schools in the rest of the county is calculated on today's costs. This could increase dramatically as the cost of petroleum rises. More importantly, it is conceivable that fuel could become limited to the extent that the busing option would not be possible.

CHAPTER VI - JOINT USE OF ELEMENTARY/SECONDARY HIGHER EDUCATION FACILITIES

INTRODUCTION

The cross-use of public K-12 facilities and public higher education facilities has been suggested as another alternative to public school building construction. This suggestion assumes that some higher education facilities are under-utilized during parts of the day and adjacent schools or school districts could accommodate some of their students some of the time in these facilities. Dr. Scott Bean, Specialist in School Plant Planning at the State Office of Education, recently studied this possibility and the following is his analysis:

CROSS USE OF PUBLIC K - 12 FACILITIES AND PUBLIC HIGHER EDUCATION FACILITIES.

The possibility of cross-use of school facilities in public elementary and secondary education and higher education was investigated in two ways: (1) An examination was made of the "Space Utilization Report" prepared by the State Building Board for the 1980 legislative budget session. (2) A survey on space utilization was made at two high schools which are adjacent to higher education facilities. These schools are Dixie High School in St. George and East High School in Salt Lake City.

Table VII is a summary of classroom utilization at the higher education facilities in Utah. This table is from the "Space Utilization Report" prepared by the State Building Board. The table indicates the number of classrooms available and the number of student stations in the rooms. The percentage utilization is given for a 45-hour week between 8:00 a.m. and 5:00 p.m., Monday through Friday.

An example is the fall quarter of the 1978-79 school year at the University of Utah. During that quarter the 209 classrooms were utilized 50.9 per cent of that time block. Those classrooms contained 13,074 student stations which were used 28.9 percent of the time.

If the principal criterion is unused classrooms, then several classrooms are available for increased utilization at the University of Utah. This criterion, however, ignores the times when these classrooms are available. Graph I shows that most of these rooms are utilized in the first four hours of the day. In the afternoon hours classroom use drops very dramatically in these facilities.

A space utilization study was made of two Utah high schools which are near higher education facilities. The two selected were Dixie High School in St. George and East High School in Salt lake City. The same parameters for space utilization of higher education facilities were used in the high school survey: a 45-hour week between 8:00 a.m. and 5:00 p.m. Table VIII contains the total classrooms, total student stations, and the percentage utilization of each of these high schools.

TABLE VII

SPACE UTILIZATION SUMMARY

UTILIZATION OF CLASSROOMS FOR FALL QUARTERS OF THE PAST FIVE YEARS

8 A.M. to 5 P.M.

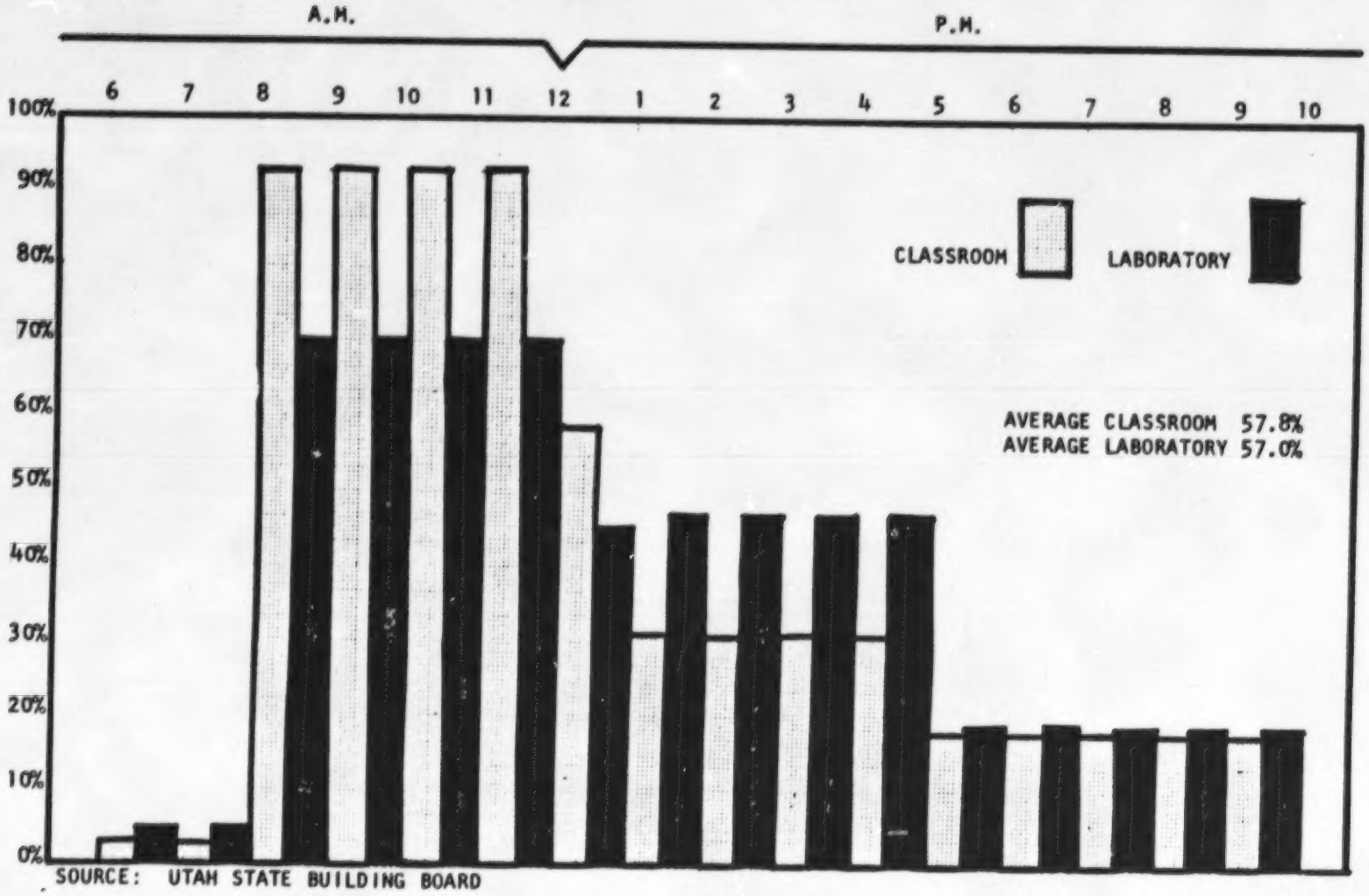
(MONDAY THROUGH FRIDAY)

	1974-75		1975-76		1976-77		1977-78		1978-79	
INSTITUTION	Room	Station	Room	Station	Room	Station	Room	Station	Room	Station
U. of U.....Number	209	12,943	194	12,531	199	12,569	206	12,955	209	13,074
Utilization	55.7	34.3	59.0	35.2	54.1	32.0	53.5	31.4	50.9	28.9
Percent Change (+)or(-)	-1.6	+0.3	+5.9	+2.6	-8.3	-9.1	-1.1	-1.9	-4.9	-8.0
U.S.U. .....Number	95	5,880	95	5,947	92	5,681	90	5,444	91	5,532
Utilization (1%)	59.4	36.6	56.9	33.5	59.2	35.0	61.5	38.0	61.6	36.9
Percent Change (+)or(-)	3.3	-1.9	-4.2	-8.5	+4.0	+4.5	+3.9	+8.6	+0.2	-2.9
WEBER .....Number	110	5,112	110	5,203	106	5,030	110	5,201	108	5,100
Utilization (%)	46.1	28.6	45.5	28.7	46.3	28.0	45.6	26.9	45.5	26.7
Percent Change(+)or(-)	-7.6	-8.3	-1.3	+0.4	+1.8	-2.4	-1.5	-3.9	-0.2	-0.7
S.U.S.C.....Number	30	1,197	33	1,311	30	1,116	31	1,136	33	1,221
Utilization (%)	53.8	34.2	49.6	30.7	53.2	35.5	52.4	34.9	49.9	31.0
Percent Change (+)or(-)	+3.3	+13.2	-7.8	-10.2	+7.3	+15.6	-1.5	-1.7	-4.8	-71.2
SNOW .....Number	17	690	16	586	14	583	14	583	17	654
Utilization (%)	42.1	31.0	45.8	33.2	46.9	32.4	52.2	37.3	41.4	30.5
Percent Change (+)or(-)	+12.9	+29.2	+8.8	+7.1	+2.4	-2.4	+11.2	+15.1	-20.7	-18.2
DIXIE .....Number	18	867	20	958	29	1,293	25	1,218	25	1,218
Utilization (%)	42.6	23.8	45.9	24.7	47.6	27.3	50.2	27.0	54.0	26.0
Percent Change (+)or(-)	-11.8	+3.5	+7.8	+3.8	+3.7	+10.5	+5.5	-1.1	+7.6	-3.7
C.E.U. .....Number	17	956	17	956	15	851	15	746	15	806
Utilization (%)	31.0	10.8	34.2	11.2	26.2	9.7	36.7	17.8	34.0	13.8
Percent Change(+)or(-)	+9.4	+9.1	+10.3	+3.7	-23.4	-13.4	+40.1	+83.5	-7.4	-22.5

SOURCE: UTAH STATE BUILDING BOARD

GRAPH I
STUDENT - STATION UTILIZATION BY PERIODS OF THE DAY

Classroom and Laboratories Student-Station Use
By Specified Periods of the Day
Fall Quarter, 1978-79
Monday Through Friday Shown at Percent of Standard



SOURCE: UTAH STATE BUILDING BOARD

TABLE VIII

SELECTED HIGH SCHOOLS

SPACE UTILIZATION SUMMARY

CLASSROOMS - 1979-80

8 A.M. to 5 P.M.

(MONDAY THROUGH FRIDAY)

SCHOOL	ROOMS	STUDENT STATIONS
DIXIE HIGH SCHOOL		
Number	41	1,123
Utilization	67.8%	50.4%
EAST HIGH SCHOOL		
Number	81	2,619
Utilization	41.9%	37.8%

SOURCE: DIVISION OF EDUCATION SUPPORT SERVICES
UTAH STATE OFFICE OF EDUCATION

Both of these high schools have relatively high space utilization during the time school is in session. At Dixie High School the seven normal student class periods occur between 8:00 a.m. and 3:00 p.m. This leaves two hours of the day when most classrooms are not used at Dixie. East High School operates on a 7:55 a.m. through 2:25 p.m. schedule which includes seven periods. Therefore, most classrooms are unused for two and one-half hours at East High School during the 8:00 a.m. to 5:00 p.m. time block.

Inquiry was also made of the two schools regarding current cross-over use of higher education facilities by their students. Dixie High School reported concurrent registration of 66 of their students in classes at Dixie College for one or more subjects per day. A surprising report was that four Dixie College students were also concurrently enrolled in classes at Dixie High School. East High School reported 17 students in concurrent enrollment and 10 students in the early admissions program at the University of Utah.

Dr. Bean concluded that:

1. Cross-over use of school facilities between adjacent school districts and higher education units is an option that could be used to increase school facilities available to both entities. Classrooms are available for use in both settings, but not at convenient hours. Classroom availability occurs mainly in late afternoon hours which, if scheduled, would be an extended day situation

2. The most promising area for cross-over use between secondary schools and higher education is in the case of highly specialized, expensively equipped facilities. Specialized program facilities, laboratories, and vocational facilities are examples of such areas.

3. Cross-over use between secondary schools and higher education institutions will not have a significant effect on the need for facilities for school districts and higher education.

CHAPTER VII - CONSIDERATIONS IN ADOPTING AND IMPLEMENTING ALTERNATIVES TO SCHOOL BUILDING CONSTRUCTION

The decision on how to house increasing enrollments in Utah schools is one that must be made by all of the people in a school district and, where state funds are involved, by all of the people in the state. To date the decision has been to meet enrollment increases by building new school buildings. This decision has been expressed by local patrons passing bond issues and by the State Legislature appropriating money for school construction.

How Utah will house the expected enrollment increases in the future will be determined, and rightly so, by these same mechanisms. If people in a school district believe that building more school buildings is the best use of their money, they will continue to pass bond issues, and, if they prefer some alternative for less money, they will turn down bond issues. If legislators think constructing buildings is the best way to meet the problem, they will continue to appropriate money for that purpose; if they think some alternative is better, they will refuse such appropriations.

Decisions such as to build or not to build should be made by the people concerned, but if they are to be good decisions, the people concerned should have as much information as possible upon which to base their decision. There is some reason to believe that in the past people making these decisions have not been acquainted with the alternatives to school building construction. In general they have viewed the options as school construction or poor education.

Most people are not familiar with school finance, particularly with capital outlay finance. Dr. David Nelson's survey for the State PTA showed that even with that sample (a school oriented sample) almost three quarters of those responding admitted limited or no understanding of Utah's school finance law. Objections expressd by respondents to other surveys on year-round school and similar alternatives have shown some lack of understanding of these options. There is a need for a mechanism to inform people of what their options truly are in relation to the massive school building problem they face.

If it becomes desirable or necessary in some school districts to consider the implementation of an alternative to school building construction, there are some considerations of which the district should be aware in the adoption and implementation of the alternative.

In determining which alternative will be used, heavy community involvement is necessary. All the options must be defined and made clear to the people, and their voice should be paramount in the choice. This procedure will greatly enhance the chances of success of the program.

The ultimate success of any alternative depends, to a large extent, on the planning that goes into it. Once the alternative is chosen, planning

must begin immediately and will require from six to 18 months to complete. This planning should include a look at the literature and the experience of others; public involvement and information programs; in-service for participating personnel; curriculum revision or development; school organization and management; special service programs; extra-curricular programs; supplies and materials; finance; maintenance schedule adjustments; food services; and transportation. A district must also look at the impact the change may have on the community and other institutions. It must work to minimize problems and provide coordination of effort.

At the state level any decision to reduce school building equalization funding must consider the effect such a decision would have on the principle of equalization. If state funding is insufficient to allow rapidly growing districts to meet their housing needs through school construction, such districts will be forced to adopt some alternative. Some will argue that this forces those districts into an unequal stance with districts not faced with growth problems. That is, districts without heavy growth will be able to pursue their education programs in the traditional mode, while less fortunate districts will have to move away from the traditional mode and thus the principle of equalization is violated.

Others will argue that equalization means equalization of educational opportunity and this is a function of the quality of an education program and not of the time of day or day of the year such education is available. They will argue that so long as the education program provided by the alternative program is equal in quality to the traditional program, equality of educational opportunity is preserved.

If a year-round school program is selected to be tried by a district, some of the mechanical ways such a program can be implemented are:

1. One school(s): One school in the district is selected as the pilot. Those who wish to attend, volunteer; others can remain in a nine-month program. One school can mean several schools; for example, one at the elementary, one at the junior high, and one at the high school level.

2. Schools-Within-A-School: A school can offer both programs in the same building. For example, in a school of 800, 400 can be on a year-round calendar and 400 on a nine-month calendar. Size of the school makes little difference.

3. Plan-Within-A-Plan: Some plans, such as Concept 8 and the Flexible All-Year, allow a school to offer both programs at the same time. For example, in Concept 8, all that is necessary is to put the curriculum in six-week units. Families that desire the nine-month calendar choose the six six-week periods that fall between September and June. Those wishing a year-round calendar can select any of the eight six-week periods that fall

between September and June. Those wishing a year-round calendar can select any of the eight six-week periods.

4. Cluster Schools: In larger districts, every three or four schools, for example, can be clustered. One of the three of four can be a year-round school. Persons in that neighborhood cluster can select either the school with the year-round calendar or can stay with the nine-month approach.

5. Paired Schools: Two schools can be paired. Either school is a neighborhood school for the extended geographical area. Parents can select either the nine- or 12-month plan.

6. Mandated Plans: Wherever necessary to solve a space problem, for example, YRS can be mandated on a district wide basis. Everyone is required to attend the 12-month plan.

7. Mandated with Appeals: YRS is mandated, yet the plan selected provides humane alternatives. If a family absolutely needs a nine-month calendar, they can appeal. Exceptions can be provided for a small minority.

8. Three-In-One-Plan; If space is not at the "beyond crucial" stage, there is no reason why a school cannot house three separate calendars. A simple example: an elementary school has 21 teachers--seven can teach in a 45-15 plan; seven can teach in a flexible all-year plan: and seven can teach on a nine-month calendar. The same concept can be implemented with nine teachers or any number of teachers beginning with at least three teachers in a school. The same concept can hold true for a district. Three or more plans can exist in the same district as long as all are compatible in the K-12 pyramids or possibilities for that district.

CHAPTER VIII- CONCLUSIONS AND RECOMMENDATIONS

As a result of a review of the literature, interviews with people involved both in Utah and in other states, an examination of studies and an analysis of findings from these studies, the following conclusions have been reached and are submitted as alternatives to school building construction:

1. There are alternative modes for operating school programs that can effectively reduce the need for school building construction.

2. Some of these alternatives can provide education of a quality at least equal to that provided in the traditional mode.

3. Alternatives can increase school capacities up to 100 per cent. An alternative that increases capacity by 33 per cent could avoid costs for school building construction during the next decade estimated at over $895,000,000.

4. The $1.7 billion estimated for school building construction over the next decade will require substantial state funding unless alternatives are adopted. However, it will be possible for the state to provide such funding and thus for school districts to continue to construct school buildings for use in the traditional mode. Building school facilities remain an option for meeting the demands of increasing enrollments. The question is whether or not this is the best option.

5. In rapidly growing school districts, the enrollment in specific attendance areas follows a predictable pattern: There is a rapid enrollment growth covering the years during which the area is being filled, followed by a plateau of enrollment at a peak level from five to 20 years, followed by a rapid decline in enrollment. Districts have historically built school facilities to meet the peak enrollment years and are therefore caught with unused building space when the peak is over. Some of the alternatives discussed in this report could be used to handle peak years and thus prevent overbuilding.

6. Parents in Utah prefer school building constuction to any or all alternatives to handle enrollment increases. Nonparents generally prefer alternatives to school construction. By and large, the public (parents and nonparents alike) have insufficient information on the options available to them to make informed decisions on the matter. A mechanism and leadership are needed to provide such information.

7. Some school districts in Utah will have to seriously consider adopting one or more of these alternatives because of increasing enrollments, increasing construction costs, and increasing interest costs resulting in a burden beyond the financial

capacity of the district to accept and possibly beyond the willingness of the state to support.

8. Alternatives to school building constuction are resisted primarily because they are perceived as requiring major changes in the traditional life style of parents, families, and educators. Lack of information also plays a role in this resistance.

9. Implementation of some of the alternatives would also have an effect on the entire community because of changed life styles. For example, employment patterns, recreation needs, church and community activities will all be affected if a sizable number of schools change schedules or calendars.

10. In the opinion of the author, of the alternatives identified in this report, the year-round school program has the greatest potential for long-term solution of Utah's school building problems. YRS has been proven educationally sound and fiscally advantageous. However, in a specific situation, one of the other programs might be more desirable. Sometimes the best alternative would be a combination of alternatives.

11. Research shows that nationwide there has been enough experience with year-round school programs that implementation of such programs can be accomplished using that experimental background as a guide even though there has been no YRS programs in Utah.

12. Mandated YRS programs have less chance of success than do programs introduced as options to the traditional programs. However, if capacity increase in a school is the reason for adopting the program, it will have to be mandated to some extent. The degree to which the public is involved in the determination of the mandated program seems to be the key to success of the program.

13. Available research supports the proposition that YRS programs can be implemented without adverse effects on the quality of education.

14. YRS programs and extended day programs work best when a high school and all its feeder schools are on the same program. This allows all children in the same family and neighborhood to be on the same schedule and calendar.

15. Adoption and implementation of any alternative chosen requires careful planning and the involvement of parents, students, and educators if it is to be successful.

16. Motivation for a school district to adopt an alternative to school building construction occurs when lack of funds makes

such construction impossible. This will happen if school patrons turn down a bond issue for school construction or if the State Legislature fails to appropriate sufficient state funds to support a district's building needs.

17. Relocatables can be an effective means of preventing overbuilding for peak loads in a particular attendance area. YRS and double sessions can also provide this function.

In light of these conclusions, it is recommended that:

1. The Utah State Office of Education accepts responsibility for and provides leadership for designing and implementing a program to disseminate information on the options for handling expected school enrollments.

2. The Utah State Office of Education should increase its capacity to provide help to local school districts in implementing alternatives to school building construction, particularly YRS and extended day programs. This capacity should include help in curriculum revision and development to fit such programs, in-service training for teachers and administrators in implementing new programs, management and administration of education systems, and custodial and maintenance schedules.

3. The Utah State Office of Education supplies the Legislature and other decision-making bodies not only with critical building needs estimates based on the traditional use of buildings, but also critical needs estimates based on at least a 33 per cent increased use of existing buildings.

4. If any critical aid school district implements an alternative to school building construction the state should provide $25,000 for start-up costs.

5. The state should consider the cost of air conditioning buildings as a critical need in any critical aid school district wishing to implement a year-round school program in place of continued school construction.

6. Local school districts, within the constraints posed by funding, should be allowed to make the decision as to the option or options they will use to house increased enrollments.

BIBLOGRAPHY REFERRED TO IN THE TEXT

1. American Education. "Any Place Can be a Classroom." 5:15-19. December, 1969.

2. Hamann, Henry A. "A Longer School Year." Illinois School Journal. Spring, 1968.

3. Muzio, Irene, et al. YEAR ROUND EDUCATION. OPERATIONS NOTEBOOK 15 Association of California School Administrators. 1977.

4. La Mesa-Spring Valley School District. "A Visual Summary of La Mesa-Spring Valley School District's Year-Round Attitudinal Survey." 1972.

5. Colorado Springs Public Schools. "Attitudinal Data on Concept Six Year-Round School Program."

6. Byrne, Joyce E. "Year-Round Education as Perceived by Parents, Students, and Staff." Lakeside Union School District (California). 1974.

7. San Diego Unified School District. "A Summary Report of the Evaluation of the San Diego Unified School District's Pilot Year-Round Schools Project." San Diego. 1975.

8. Colorado Springs Public Schools. "Two Year Achievement Data on Concept Six Year-Round School Program."

9. Servetter, Leonard. YEAR-ROUND SCHOOL PROGRAM: A CASE STUDY.

10. San Diego Unified School District, op cit.

11. La Mesa-Spring Valley School District. "Evaluation of Scholastic Achievement in Year-Round School."

12. Burnett, Robert W. A Study of Year-Round Schools. Volume II: Cost Analysis. Stanford Research Institute, Menlo Park, Calif. Nov., 1978. 195 P.

13. Vouga, Robert George. Perceptions of Parents in Selected 45-25 Year-Round Elementary Schools in Southern California. Unpublished doctoral dissertation, University of Southern California. 1976.

14. Bragg, Roy L. "A Summary of Doctoral Dissertations in Three Areas of Year-Round Education." Thresholds in Education. February, 1979.

15. Bardsley, Roy J. "Utah Feeling Mixed on Future Schools." Salt Lake Tribune. Dec. 9, 1979.

16. Nelson, David E. and others. Jordan School District Survey of Parent Opinion on Options for Providing Space for Elementary Level Students.

Utah State Office of Education and Jordan School District. Salt Lake City, Utah. 1980.

17. Utah Congress of Parents & Teachers. Utah State PTA Survey of Community Opinions on Education. Utah State Congress of Parents & Teachers and Utah State Office of Education. Salt Lake City, Utah. 1980.

ADDITIONAL BIBLIOGRAPHY

1. Berger, Ellis. "Some 45-15 Drawbacks: The Teacher's View." Phi Delta Kappan; 56;6;420-21 February, 1975.

2. Bethel Public Schools. An Analysis of Operations Cost Under Traditional and Year-Round Student Schedules in the Bethel Public Schools. Washington University, Seattle, Washington. 1978.

3. De Gregorio, William "Tewsbury's Plan: The Continuous School Day." Paper presented at NASSP Convention. 1973

4. Evans, Robert A., et al. "A Comparative Analysis of the 45-15 Plan And The Traditional Calendar in the Prince William County Public Schools of Virginia," Executive Summary. Allen Corp. of America, Alexandria, Va. 1978.

5. Heller, Melvin P. The Extended School Year: Evaluation and Pitfalls. A Simulation Notebook. May, 1974. 22 P.

6. Knapp, John L. and others. A Cost Study of Loudoin County's 45-15 Program. Virginia University Charlottesville. Taylor Murphy Institute. 1970.

7. La Gana, Joseph F. Gemini 220: An Extended School Day and Calendar as an Alternative to New Construction. A Feasibility Study. North Allegheny School District, Pittsburg, Pa. Nov., 1969.

8. Muzio, Irene et.al. Year-Round Education. Operations Notebook 15. Association of California School Administrators. 1977.

9. New York State Education Dept. A Study of School Calendars. Division of Research. 1978.

10. Pelavin, Sol. H. and others. A Study of Year-Round Schools, Executive Summary. Stanford Research Institute, Menlo Park, California. 1978.

11. Riches, Ralf C. and others - Year-Round School Study: A Report to Granite School District and Utah State Board of Education. Granite School District. Salt Lake City, Utah. 1973.

12. Russell, Roger E. and Fazzaro, Charles J. "A New Look at the Year-Round School." Clearing House; 47; 4; 195-201. December, 1973.

13. Sheppard, Morris A. and others. Year Round Schools: The Importance of Year Round Schools. Final Report. ABT Associates, Inc.

14. Springfield (III.) School District. The Implications of Double Shift Scheduling in Springfield High Schools. 1969.

15. Sticker, Joseph. "Forty-Five-Fifteen, A Great Way to Live." American Education; 10;4; 11-15 May, 1974.

16. Univer, Irving O. "Year-Round Schools: A New Ball Game for Facility Planners." CEFP Journal 12;3; 4-8 . May-June, 1974.

17. White, William. Concept Six Year-Round School Plan. A Simulation Notebook. May, 1974. 26 P.

18. Year-Round Schools. National Education Association, Washington, D.C. Division of Instruction and Professional Development. May, 1974. 64 P.